



SATURDAY, JUNE 15, 1872.

Manning's Bolt, Pipe and Nipple Cutter.

The accompanying engravings illustrate a machine which will cut threads on one-inch bolts and one-and-a-quarter-inch pipes, or smaller sizes, which is intended for use on a bench, to be operated either by hand or power. It was patented April 23 of this year, and is manufactured at Nos. 93, 95 and 97 Liberty street, New York, by W. L. Chase & Co. The *American Artisan* describes it as follows:

It is manufactured in the best manner; the parts are lined up, and made perfectly true to a template, each piece fitting any machine. All set-screws are turned steel, and the jaws tempered malleable iron and steel. Its weight is 145 pounds.

Power may be applied either by the crank, which may be attached to the shaft of the pinion, *B*, or to the spindle, *D*, fig. 1. The dotted lines, *E*, fig. 2, represent a lever and pawl, which may be used when more power is required than can be applied by the crank.

Fig. 1 shows a side view of the machine, as arranged for cutting a bolt or pipe, which is held and centered by the jaws in the head, *A*, figs. 1 and 5. The cutting-die, shown at *F*, is revolved around the bolt or pipe, insuring a uniformly cut

Contributions.

"Hindoo" and Train Dispatching.

TO THE EDITOR OF THE RAILROAD GAZETTE:

YOUR GAZETTE of May 18 answers impliedly the conundrum as to the object of "Hindoo's" effusions on train dispatching. He says, "My object has not been to exaggerate or to condemn," and the inference is that he intended to start a general discussion on the subject. In this he has not only been successful, but generously *foots the bills*.

It will be readily conceded that his observations are rather those of "A casual observer not connected with the traffic department" than those of a practical railroad man. The question as to the propriety of "A casual observer" indulging in such sweeping and erroneous criticisms of any business, must be left for the future to answer.

If his system for train dispatching, given in full, with 26 rules carefully elaborated, examples given, etc., did not aim at details, what did it aim at? I understand him now to say that "They were not intended as a complete system of train working; they involved principles only, and not details." Now, if his system did not include details, we must wait until it does; for train dispatching, of all things, is too full of details for any system without them to be approved or condemned.

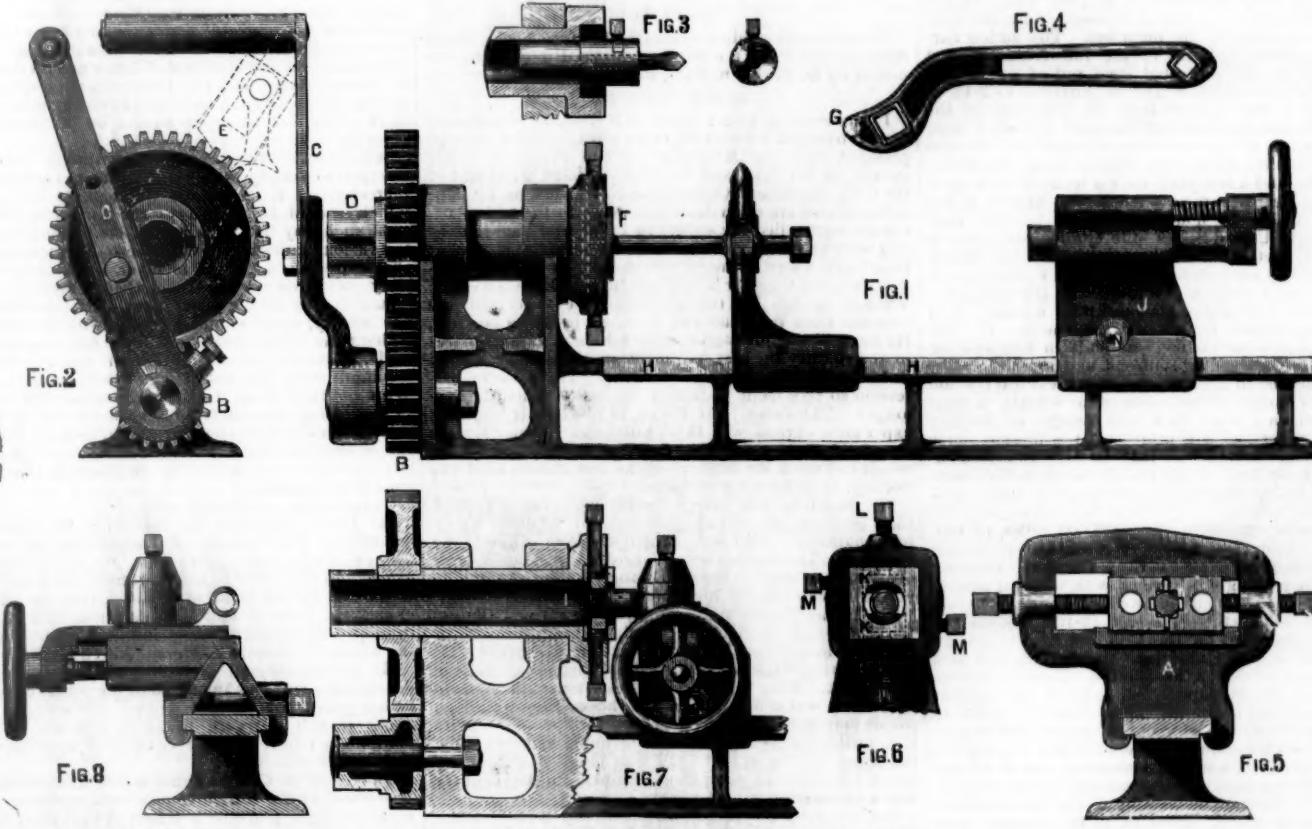
AMERICAN SOCIETY CIVIL ENGINEERS.

Report of the Fifth Annual Convention.

CHICAGO, June 7, 1873.

The fifth annual convention of the American Society of Civil Engineers was held in this city on Wednesday and Thursday of this week. The convention was a very noteworthy one, inasmuch as it comprised very many of the greatest engineering intellects of the world, although they were all American citizens. No such convention of men of first-class ability has been held in this city for years, and perhaps never before. It was pre-eminently such a body of men as Chicago just at this time likes to honor, since no other class of men could so well appreciate this city in its past and present condition as they, or so well form a notion of its future destiny. The following is a list of the members and fellows of the society who were present:

Hon. Wm. J. McAlpine, Pittsfield, Mass.; J. O. Morse, New York; G. H. Norman, Newport, R. I.; A. P. Boller, New York; M. N. Forney, New York; Gen. T. E. Ellis, Hartford, Conn.; E. P. North, New York; Clark



MANNING'S BOLT, PIPE AND NIPPLE CUTTER.

thread, and the strain being steady, there is less liability of splitting pipe than when the stock and die is used.

The head, *A*, is forced up toward the cutting die by the lever, *G*, which has a stud or fulcrum at *G*, which is inserted into holes in the bed-plate, *H*, not shown in the engraving.

For revolving pipe to cut off nipples, the jaws, *K K*, fig. 6, are inserted in the spindle-head at *I*, fig. 7, and are held in place by the screws, *M M*, and clamp the pipe by means of the set-screws *L L*. The center-head, figs. 7 and 8, may now be used in the same manner as on an ordinary lathe. It is secured to the bed-plate at any point by the binding-screw, *N*.

Fig. 3 shows a drill-chuck, which is inserted into the hollow spindle at *I*, fig. 7. The tail-center, *J*, is secured on the bed-plate in the same manner as the cutter-head, and is used to give the feed to the piece being drilled. This arrangement may also be used for centering.

Fig. 4 shows the lever, which may be used also as a wrench; it is made of malleable iron.

If preferred, pipes or bolts may be clamped in the jaws, fig. 6, and open or solid dies used in the head, *A*, figs. 1 and 5. At convenience taps are held either in the head, *A*, or in the jaws, fig. 6.

A Car of Seventy Feet Gauge.

There is at the Grand Central Depot in New York a car made for trans-ferring passenger cars from one track to another without switching, which runs on a track of 70 feet gauge. The *Scientific American* describes it as follows:

"This great vehicle is made in the form of a low platform car, and the track on which it runs is provided with four rails, extending from Fourth avenue to Madison avenue. The car is used for the lateral transfer of passenger cars from the main tracks of the Hudson River, Harlem and New Haven railroads to the various side-tracks, thus avoiding the use of turntables. The car is propelled by steam, the engine and boiler being contained within a sheet-iron house carried on one side of the machine."

"The cars to be transferred are run upon the great car; steam is then turned on and the huge machine trots off with as much ease as a horse draws a buggy. The machine is supported on eight wheels, arranged on independent axles. There are in addition four driving wheels arranged upon one axle."

"Hindoo's" criticism of "X" says: "X" has made a statement which should not be passed over, as it may mislead those who have not read the Massachusetts Commissioners' report more understandingly than he apparently has."

If "Hindoo" had thoroughly digested that very able report, he would have ascertained that the "American system," as he calls it, was so nearly ignored in Massachusetts during the years that his data were taken from, that the Commissioners not only strongly recommended its adoption there, but cited the Chicago, Burlington & Quincy, the Michigan Central, etc., as examples of what the system was doing, coupled with the remark that those roads "accommodate their vast traffic on a single track, simply because they make use of the telegraph; and yet experience has shown that these roads are as free from accidents as any double-track roads in Massachusetts."

Locating Frogs.

RICHMOND, Va., June 3, 1872.

TO THE EDITOR OF THE RAILROAD GAZETTE:

As none of the various formulae for the location of frogs, to which you have given a place in your columns, appear to be quite as simple as that which I have used, I venture to forward it for publication. I have never met with it in print.

Let *G* = gauge

D = diameter of curve of turn out

D n = diameter of curve of main track,

x = distance measured on tangent from heel of switch to point of frog.

Then, if main track be straight, *x* = $\sqrt{G D n}$

If main track be curved, *x* = $\sqrt{\frac{G D n}{n+1}}$

n+1 being used if curves diverge;

n-1 being used if curves converge;

x being known the angle of frog is readily deduced.

E. T. D. Myers, Civil Engineer.

Fisher, Trenton, N. J.; F. Collingwood, New York; R. D. Dodge, New York; Hon. A. D. Briggs, Springfield, Mass.; S. S. Chase, Holyoke, Mass.; Stephen Chester, New York; William S. Barbour, Boston; Joseph Whitney, Cambridge; Wm. Arthur, Brooklyn; Gen. Ira Spaulding, New York; Martin Coryell, Wilkesbarre, Pa.; T. F. Rowland, Green Point, N. Y.; Jacob B. Brown, Newport, R. I.; J. H. Armington, Providence, R. I.; J. B. Francis, Lowell, Mass.; James Archibald, Scranton, Pa.; G. Leverich, New York; Gen. Alexander S. Diven, New York; Charles Macdonald, New York; O. B. Whitford, Owego, N. Y.; T. D. Lovett, St. Louis; T. C. Clarke, Philadelphia; C. H. Fisher, Albany; J. P. Davis, Boston; W. P. Shinn, Pittsburgh; T. C. Steele, Coatesville, Pa.; J. D. Steele, Philadelphia; Charles Paine, Cleveland; H. A. Gardner, Jackson, Mich.; F. Slataper, Pittsburgh; C. Hermon, Louisville; S. T. Abert, Louisville; F. W. Vaughn, Louisville; B. C. Farran, Greenville, Mass.; M. Lane, Milwaukee; S. P. Reed, Joliet, Ill.; Walter Katte, St. Louis; E. Kirk Talcott, Dover, N. J.

In addition to the above-named gentlemen, the following prominent engineers and scientific men were present throughout the sessions of the gathering:

Octavius Chanute, Kansas City; D. J. Whittemore, Milwaukee; Joseph Utley, Dixon, Ill.; E. B. Talcott, Commissioner of the Illinois & Michigan Canal; William Bryson and W. H. Clark, Assistant City Engineers of the city of Chicago; Joseph S. Smith, Dubuque; Richard W. Potts, Chicago; O. B. Green, Chicago; L. P. Morehouse, Chicago, Assistant Engineer of the Illinois Central Railroad; W. S. Pope, Detroit; K. F. Booth, S. S. Greeley, L. Sanborn, D. C. Cregier, Engineer of the Chicago Water Works; W. M. R. French, Chicago; E. D. Mason, St. Joseph; J. H. Kellogg, A. W. Paige, Chicago.

FIRST DAY'S PROCEEDINGS.

The convention was called to order by Gabriel Leverich, the Secretary of the society, in the absence of the President and Vice-Presidents, and Hon. Wm. J. McAlpine, of Pittsfield, Mass., was chosen temporary chairman.

Mr. McAlpine in taking the chair congratulated the convention upon the happy auspices of its opening. The members from the East had been brought to Chicago with the sumptuousness of royalty itself. He explained the absence of the President, Mr. Horatio Allen, and the absence of the Vice-President, and concluded by nominating as permanent chairman, Mr. E. S. Chesbrough, City Engineer of Chicago—a gentleman who was well known to all the best engineers of Europe.

The retiring chairman conducted the chairman elect to his official position with all the grace of a true courtier.

Mr. Chesbrough thanked the convention for the honor unexpectedly conferred, and the assembly proceeded to the transaction of business.

The Secretary read a letter from the President, Horatio Allen, regretting the necessity of his absence.

Mr. A. P. Boller was elected Assistant Secretary, and a resolution was adopted tendering an invitation to the Railroad Commissioners of Illinois to take seats with the convention.

EARLY HISTORY OF RAILROADS.

Mr. J. D. Steele, of Coatesville, Pa., read a paper on the "Early History of Railroads, and the Origin of the Gauge." The paper was full of interest, and elicited the undivided attention of the members. The author narrated the gradual progress of the rail from the first wooden track to the perfect steel rail of the present day. Steam was employed first in England, in 1814, in which year it was proved that the adhesion of the wheels to the rail was sufficient to move a loaded train without the use of cogs or stationary engines. In 1816 Stephenson applied the motion directly from the piston to the wheels, and a few years later a train of 38 wagons loaded with freight and passengers was drawn at the rate of 12 miles per hour. In 1827 the first road was built in the United States—the Quincy road, with a gauge of 3 feet. About the same time the Mauch Chunk road was constructed, which was a gravity railroad, extending a distance of 9 miles. In 1828 the Baltimore & Ohio road was commenced with a gauge of 4½ feet, and with outside flanges for the wheels. In 1829 the Rocket, a tubular engine, was built in England for the London & Manchester Railroad, and about the same time it was settled in England that there was less friction in having the flanges on the inside of the wheels. A great many experiments were tried with gauges of varying width, until at last, as a compromise, the present gauge of 4 ft 8½ in. was adopted. In 1830 the first American engine was built by Peter Cooper, and ran from Baltimore to Ellicott's Mills, carrying 23 passengers, at a rate of 5 to 18 miles per hour.

At the present time there were 125,000 miles of rail road in the world, and locomotives enough to form a continuous line from New York to Chicago. The conclusion of the reading was greeted with warm applause.

In the discussion which followed, Mr. McAlpine said Mr. Horatio Allen, the President of the Association, was the first engineer on the Charleston & Hamburg Railroad, and was the first man in America that took hold of a lever to run a locomotive. This locomotive was the Lion. Mr. McAlpine had seen it put together when he was a boy, and had helped to some extent in the operation. Anyone who should go to Kensington Museum in London could see there the first English engine, the Rocket. It was a curious thing, part wood and part iron. He would also see there one of the first engines made by Watt. The walking beam and connecting rods were of wood. Portions of this engine were in the Bank of England and in the Kensington Museum.

Mr. M. N. Forney said that in 1832 Mr. Allen had two engines built for the South Carolina Railroad which had all the essential features of the Fairlie engine. An engraving of this engine had been published in a paper in this country and in *Engineering* in England, since which time Mr. Fairlie had taken out new patents for his engine. The case was mentioned as of interest because it appeared to be the revival of an abandoned invention.

Mr. Allen detailed the incidents connected with the starting of the first locomotive in this country. Mr. Horatio Allen was the engineer, and drove the engine over a weak trestle-bridge near the point of starting, with safety, and left the spectators admiringly cheering the performance of the locomotive.

ELECTRO SCIENCE FOR ENGINEERS.

Mr. Stephen Chester, of New York, read a paper on "Electro-Science as a Part of the Education of Civil Engineers." This paper also called out some discussion, during the progress of which Mr. Chester said the force was used to the purpose of controlling automatic machinery, in the sense that the brain and nerves control the muscular system—not as a force, but as that which controls a force.

Mr. Coryell asked if electricity and galvanism could not be brought to bear to test the strength of iron and steel.

Mr. Chester said some experiments with electricity had been made to test the purity of copper, by determining the capacity of that metal for conducting the fluid. The same test might be applied to determine the purity of iron and steel.

"ENGINEERING."

The next paper was one written by Colonel W. Milnor Rogers, of New York, on "Engineering," and in the absence of the author it was read by Mr. M. N. Forney. The subject was very ably discussed, and was followed by a discussion on the depth to which caissons could be sunk without endangering the lives of the workmen employed within them.

Mr. Steele said it had been a serious question in New York whether the caissons in the East River could be sunk the requisite depth, 105 feet, without endangering the

lives of the more delicate workmen, from the weight of the compressed air.

Mr. Katté said the greatest pressure in the caissons used in constructing the piers of the St. Louis Bridge was about 50 pounds, and he did not know of a single case of injury to the workmen caused by the pressure.

Mr. Collingwood said, if it were taken for granted that a man could labor 12 hours continuously in the ordinary air, then with a pressure of two atmospheres he could labor about half that time; in a pressure of three atmospheres about one-third the time, and in a pressure of four atmospheres about one-fourth the time. If the man had a proper chance to rest, there was no danger. The great difficulty was the change back again to the external air, after working in the caisson.

Mr. McAlpine thought the effect of the compressed air was like that of a stimulant, and the danger was when the stimulant was withdrawn. The compressed air had something of the effect of laughing-gas. By a gradual application of the pressure he had known workmen to work under a weight of five atmospheres without the slightest injury.

The Secretary announced that invitations had been received, inviting the members to visit the shot works of E. W. Blatchford, and that excursion trips had been tendered by the general superintendents of the Chicago, Burlington & Quincy, the Milwaukee & St. Paul, the Chicago & Alton, the Michigan Central, and the Louisville & Nashville railroads; also that the President of the Union Stock Yards had sent an invitation to visit the grounds of the company.

EXCURSION.

The convention adjourned until 10 o'clock on Thursday, and at 3 P. M. the members proceeded on a tug furnished by O. B. Green, Esq., to the lake crib.

ANNUAL BANQUET.

In the evening, at the Tremont House, the seventeenth annual banquet of the society took place. Mr. Chesbrough presided, with Mr. McAlpine, the first President of the society, on his right, and Mr. Charles Paine, President of the Civil Engineers' Club of the Northwest, on his left. After proper attention had been paid to the tables, Mr. Chesbrough called the society to order, and said that he had been fifty-four years in the profession, and in all that time had not seen so many representatives of the profession gathered together at any one time. On behalf of the Western branch of the profession he welcomed the brethren from the East and from all over the country. He thought the holding of conventions at various places in the country the best means of uniting the profession and of maintaining its high standard. There was no profession so free from jealousies as that to which they belonged. [Applause.] It was so in this country, and his experience abroad was that European engineers were proud of their American brethren. [Applause.] He would call upon Mr. McAlpine, the first President of the Society, to make a few remarks.

Mr. McAlpine said his experience was, that in Europe their brethren were always delighted to welcome American engineers. This was particularly so in France and England. The highest letter of credit a man could carry—better than that of Baring Brothers—was to be told to say he was an American engineer. [Applause.]

Mr. Paine, President of the Civil Engineers' Club of the Northwest, thought the coming of the national society to Chicago was a good thing for all parties. He was glad they ventured beyond the narrow political walls of New York. They rejoiced last year when they heard the society was coming here, and hoped they would go somewhere else next year. Union and intercourse with each other was necessary. He concluded by hoping that the American Society of Civil Engineers would spread all over until every competent engineer in the country was a member of it. [Applause.]

Mr. Katté, of St. Louis, responded on behalf of the Northwestern Society, and on behalf of St. Louis he extended an invitation to the convention to visit that city.

Several other speeches were made, and having enjoyed an evening of social intercourse, the gathering broke up at an early hour.

SECOND DAY.

The convention reassembled, at 10 o'clock on Thursday for the transaction of business relating to the organization.

A series of resolutions, thanking the various railroad officers for the invitations extended to the members, was offered and adopted.

Mr. A. P. Boller, of New York, read a paper on the Fellowship Fund of the association.

On motion of Mr. Macdonald, the thanks of the association were tendered to Charles Hermann, of Louisville, Ky., for efficient aid in securing contributions and publications to the fund.

Mr. Boller stated that Mr. Norman had proposed to give to the society a sufficient sum of money, not less than \$1,000, for the purpose of instituting a prize fund, which will enable the society to award a gold medal each year for the best paper on engineering.

Mr. Boller moved that the Board of Directors be requested to consider the feasibility and propriety of instituting a series of prizes for written papers upon professional topics, and to devise rules and regulations for conducting the same.

After a considerable discussion of the subject, Mr. Morse offered a resolution, which was adopted, accepting the gift of Mr. Norman with thanks, and requesting the Chair to appoint a committee of three from among the directors to arrange with Mr. Norman the details necessary to perfect his plan.

After a prolonged discussion upon the subject, the convention at length adopted a resolution offered by Mr. Boller, instructing the Board of Directors to examine and report upon the system of prizes, and to have their report printed some time before the next meeting of the convention.

Mr. Charles Paine said there had long been a desire on

the part of the Western members that their intercourse with the parent society should be more frequent and more intimate; that they should be able to be in constant correspondence with it, and should know all that was going on there; that they should be, in fact, a part of the society, and not a mere appendage of it. He did not know that any one had yet evolved out of his own consciousness an idea of what should be done, but there was a general desire that the society should become a national one, and should maintain a steady, constant and rapid intercourse with all its members. The first step in this direction was the appointment of a paid Secretary. The gentlemen who had performed the arduous duties of the office were busy men, and could not be expected to give their time for nothing. The members were becoming too well off, and had too many resources to longer submit to the indignity of being served by gentlemen merely for their own pleasure. He did not see exactly how this was to be accomplished, but it must be done in some way. The society must arrange to go cheaper somewhere else. Now the expenses of the association were confined to the publication of the reports; could not this expense in some way be met without trenching upon the funds of the society? These papers could be published in any of the respectable journals of the country free, and all the members supplied with copies printed as elegantly as now. All the society had to do was to sacrifice what he believed to be a false notion of dignity. A great many more engineers would know that there was such a society if its publications were printed in some respectable scientific journal. If the papers had appeared regularly in the *Franklin Institute Journal* or in *Van Nostrand's Magazine*, or any other respectable journal, engineers would have been familiar with the fact that there was a society of American civil engineers. It is more important that the Secretary should be paid, so that the society can have some relation with the outer world, than that the papers should be published at great expense.

It had occurred to many present that the relations of the parent society with Western men could be largely increased by the formation of chapters or local clubs which should be related to the American Society in some such way that all the members of the local clubs of the various cities and towns where they may be formed should become associate members of the American Society of Civil Engineers—not full members. They would then enjoy the advantages of the publications of the society, be in communication with the society and be led to an ardent desire to become full members.

Mr. Paine offered a resolution for the appointment of a committee of five, consisting of two members from the West and three from the East, to consider the best means of increasing the intercourse between the society and its members, and to consider the subject of allied societies or chapters, and report such changes of the constitution and by-laws as would be necessary to effect the objects contemplated.

This resolution was adopted.

Mr. Paine suggested the following as a part of the committee: Mr. Chanute, of Kansas City, as being the farthest west of any gentleman; Mr. E. S. Chesbrough, as being in the center of the Continent; and Mr. Thomas Clarke, of Philadelphia, who had given the subject of chapters a good deal of consideration. The Chairman subsequently completed the committee by the addition of the names of Horatio Allen and Alfred Griffin.

Mr. Macdonald endeavored to call from the table a substitute for articles 19 and 20 of the constitution, which he had offered at the last annual convention. A long debate ensued in regard to the subject, after which the matter was referred to the committee appointed under Mr. Paine's resolution.

On motion of Charles Paine, a committee of three was appointed by the Chair to take into consideration the question of the place for the next annual meeting of the convention, and to submit the selection of a place to the suffrages of all the members of the society by correspondence through the Secretary. The President appointed as the committee Jacob M. Clarke, Gabriel Leverich and J. O. Morse.

A resolution to pay the Secretary a salary hereafter was unanimously adopted.

Mr. Arthur, of Philadelphia, read a paper on the Automatic Cut-off.

THE DETROIT TUNNEL.

Mr. E. S. Chesbrough followed with an interesting paper on the Detroit River Tunnel. The paper narrated in some detail the preliminary survey to obtain the most feasible line for the tunnel. The river at the point runs nearly east, and is half a mile wide. The length of the portion of the tunnel under the river is 3,000 feet. There are to be 20 feet of earth between the masonry and the river bed. The tunnel was to be made circular, and of sufficient diameter to allow the largest Pullman car to pass through. By having five or six working forces, the tunnel could be prosecuted so vigorously as to have it completed in less time than a year. The entire cost of the work was estimated at \$2,650,000. The rate of progress has far had been less than the contemplated rate. Mr. Chesbrough described the devices which he made use of to protect the men from sudden danger from any cause. The reading of the paper was greeted with applause.

In answer to a series of questions, Mr. Chesbrough said the auger used to test the ground was of wood, and that the earth which stuck to the point of the auger always indicated the nature of the earth where the boring ceased.

The next paper read was on "Strains of Bridges," by T. C. Clarke, of the Phoenixville Bridge Works.

This was followed by a paper by James B. Francis, of Lowell, Mass., on Experiments in the Deflection of Continuous Beams Supported at Equidistant Points.

THE EAST RIVER BRIDGE.

Mr. F. Collingwood read a long and very interesting paper entitled "Further Notes on the East River Bridge." The paper detailed the method employed in sinking the caissons, the devices necessary to enable the workmen

to work within them safely and conveniently, and the effects of the compressed air upon the men, resulting in some instances in injury, and in one or two in death.

Mr. Walter Katté, of St. Louis, read an account of the method of construction of the Illinois and St. Louis Bridge. The paper was accompanied by a large diagram, which showed to the eye the machinery in process of supporting the partially finished arches; and Mr. Katté explained how the engineers in charge proposed to put in the last link, or keystone of each arch.

The next paper was written by R. G. Hatfield, the subject being "Building Materials." It was read by Mr. Charles Macdonald.

The paper written by Edmund Yardley, on Cements, was read by Mr. A. P. Boller.

A paper on Closing Breaks in Dams under Difficulties was read by O. B. Whitford, of Owego, New York.

The last paper read was written by Henry L. Libers, of East St. Louis, on the Manufacture of Coke from Illinois Coal, and the Process Employed in Purifying Slack Coal. It was read by Stephen Chester, in the absence of the author.

The last paper presented to the association, that of Mr. Eichbaum, on the Selection of Stone for Masonry, was not read, as the association had been in continuous session from 10 a. m. to 20 minutes after 4 p. m., and the members were weary and hungry. It was ordered printed with the transactions.

The Secretary read the names of some additional persons proposed as members and fellows, which were referred to the Board of Directors.

On motion of Mr. Chester, it was ordered that the proceedings of the convention be published in such form as the Printing Committee should deem expedient.

A motion made by Mr. Shinn that each member of the convention should pledge himself to make his best endeavor to return a fellow to the society next year was adopted.

The President, just before the adjournment, made some appropriate closing remarks, saying that the results of the convention must be gratifying to all who were present, from the fraternal feeling which had been exhibited. He believed the meetings would result in a greater interest in the society all over the land, and in making it truly a national society.

A vote of thanks, proposed by Mr. McAlpine, to the presiding officer and secretaries, was carried, and the convention adjourned.

From the St. Louis papers we learn that among those who visited that city were Messrs. McAlpine, Ellis, Rowland, J. P. Davis, Theodore Allen, Archibald, Armstrong, North, Coryell, Fisher, Collingwood, Whitford, Arthur, Morse, Abert, Vaughn, Lovett, Whitney, Gould, Farran, Chase, Dodge, E. N. K. Taleott, Barber, Leverich, Morehouse and Jenney, together with those residing in St. Louis. In that city they visited the Water Works and the great Illinois & St. Louis Bridge.

Many of the party went from St. Louis by way of Louisville and Cincinnati to Pittsburgh, and thence to their homes.

THE AMERICAN RAILWAY MASTER MECHANICS' ASSOCIATION.

Report of the Fifth Annual Convention.

The fifth annual convention of the American Railway Master Mechanics' Association assembled in Horticultural Hall, Boston, Tuesday, June 11. The attendance was larger than at any previous meeting. The following report of the proceedings of Tuesday is made up from the reports of the various Boston evening papers of Tuesday, with a few corrections:

The convention was called to order at 9 o'clock by the President, Mr. H. M. Britton, of Cincinnati, of the White Water Valley Railroad, and Rev. T. J. B. House, of the Harvard Street Baptist Church, offered prayer. The minutes of the last annual meeting were approved, and the roll of members was called by the Secretary, Mr. J. H. Setchel, of Cincinnati, of the Little Miami road, after which a number of gentlemen joined the Association.

PRESIDENT'S ADDRESS.

Mr. Britton then made a brief opening address, in which he congratulated the members on assembling for the holding of the fifth annual convention. He spoke of the change in time of holding the meetings from September to May, although the present session is held in June by request of a large majority of the members of the Association. He complimented the committees on the zeal with which they have attended to their duties, but he suggested that a committee to assign subjects to be referred to committees be chosen early in the session, and that these latter committees be chosen before the convention is ready to adjourn. He hoped when the reports had been made they would be fully discussed, as only by this means could real benefits be derived. He urged the members to attend the meetings promptly, as after each daily session there would be time enough to visit places of interest in and around Boston. He thanked the Association for electing him President from its formation, and expressed the hope that some other member might be selected to serve for the ensuing year.

TREASURER'S REPORT.

The report of the Treasurer, S. J. Hayes, of Chicago, was then presented, showing receipts of \$1,470, expenditures, \$1,411.35, and a balance of \$58.65 in his hands.

INVITATIONS.

A letter was read from the Secretary of the Superintendents' Association in Boston, cordially welcoming the Association, and tendering them a special train on their several roads for an excursion. A vote of thanks was extended for the courtesy. Other letters were referred to a committee on correspondence, consisting of S. J. Hayes of the Illinois Central; W. A. Robinson, Great Western; E. O. Hill of the Erie; C. S. Ham of the New York Central; and A. H. De Clercq of the Toledo, Peoria and Warsaw road.

REPORT OF BOILERS AND BOILER MATERIAL.

A paper prepared by the committee, of which Mr. Hayes, of the Illinois Central road, was Chairman, upon "Boilers and Boiler Materials," was then read by the Secretary.

The report gave opinions from many prominent master mechanics, as well as the result of experiments made by the committee, leading them to the opinion that no American iron is equal to the Low Moor iron for boilers, and that drilling the rivet holes shows a strength of 4,160 pounds greater than if the holes are punched. They recommend the use of 4-inch rivets, and hollow stay bolts of iron for furnaces. The report was ac-

cepted and a discussion on the subject was then had. Mr. Hayes, of the Illinois Central road, the Chairman of the committee making the report, expressed the hope that the master mechanics would give their views, as the committee had taken much trouble in their experiments with boiler plates, and they wanted to have the experience of others. In answer to a question of Mr. Hudson, of the Rogers' Locomotive Works, Paterson, N. J., Mr. Hayes said the committee had tested the iron of the same grain, the pieces being taken from one sheet and the test being made lengthwise of the sheet. He explained that after a plate had been punched the use of a microscope would reveal that all around the holes there would be stars, showing the injury to the grain of the iron, and this had led the committee to recommend the use of drilled plates for those parts of the boiler where the greatest pressure came, and have the others punched. Mr. Wells of Jeffersonville coincided in the opinion expressed by the committee, and gave his experience to show the conclusion arrived at to be correct. Mr. Harry Elliott of St. Louis stated that his experience had led him to think that the Sligo iron was equal to the Low Moor, but Mr. Hayes said he had never found any American iron equal to the Low Moor, although he had endeavored to find an American iron that he could use with safety. Mr. Maynes of Selma, Ala., had used Sligo iron for two boilers and he thought they were as good as any. Mr. Hudson thought the Pine iron, made by Bailey, was better than Low Moor, and was not liable to break. Mr. Gorman of Springfield, Ill., and Mr. Flynn of Atlanta, Ga., spoke highly in favor of the Hillman, Tenn., charcoal iron, saying it was superior to the Low Moor, and they had never found a bad sheet of it. Mr. Hudson said he thought much depended on the manner of working crown sheets of fire-boxes, as to whether iron or steel was the best, but he favored steel, while Messrs. Hayes and Elliott favored iron. Mr. Eddy of the Boston & Albany road said that a couple of years since the members of the Association were nearly all in favor of steel, but he was glad to find they were beginning to come round to iron. Mr. Sedgley of Cleveland, Ohio, said his experience had convinced him that steel was the best, and he used it in preference to the most superior iron. Mr. Eddy said that his road had used four locomotives built by the Grant Works, which were built as sample engines, and were as well built as any engines. In these the fire-boxes were of steel, and he had no doubt the steel was good, but he had found it did not work well, and he was in favor of iron entirely. Mr. Griggs, of Oswego, N. Y., spoke in favor of "Bowling" iron, which his road had been in the habit of importing from England, but this brand was not near so good now as it was ten or fifteen years ago. He thought a steel fire-box would wear out two iron ones. Mr. Gorman expressed the opinion that much of the wear of fire-boxes depended on the quality of the coal used, his experience showing that both this and the water were very important in considering the wear of crown and flue plates. Mr. Robinson, of Hamilton, Ont., explained the difference in the various kinds of iron made in England, and his experience with them on the Great Western road, showing that they had run much risk with both iron and copper fire-boxes. He said he was decidedly in favor of steel, and they were now altering all their engines. It might be that England produced the best iron, but there could be no doubt but that America produced the best steel.

Mr. Grant, of Baerdtown, Ill., spoke in opposition to steel fire-boxes, and expressed himself in favor of the plain fire-boxes. Mr. Elliott also thought this plan the best, although he had tried the brick arch and tested it with the plain box, and he considered the advantages did not pay for renewing the arches when they had burned out. Mr. Shaver, of Pittsburgh, Penn., favored the brick arch, as did Mr. Maynes, of Selma, Ala., the latter gentleman giving his experience in running an engine as an experiment. Mr. Gregg, of Susquehanna, Penn., gave data of experiments he had made on the Erie road with plain fire-boxes. He had used the brick arch and the combustion chamber and was decidedly in favor of the plain box. Mr. Towne of Hannibal, Mo., spoke of the importance of drilling firemen, and the marked difference in the consumption of coal there was between a green fireman and one who had been drilled, and he advocated the use of the Jauriet water box. Mr. Philbrick, of Waterville, Me., said that his road had to use the brick arch in order to burn the very fine coal used in New England. Messrs. Hudson, Hill, of the Erie road, and Towne spoke in favor of large fire-boxes, the latter recommending the use of coal about the size of a man's fist as being the best size to obtain the best results. Mr. Sellers, of Pittsburgh, Pa., spoke of the importance of consuming all the gases in the coal as a means of avoiding the annoyance from smoke, and having the fire-box as large as possible. Mr. Fry, of the Grand Trunk road, gave an interesting description of experiments with the Cudworth locomotive in England, both in the consumption of fuel and smoke, and expressed himself in favor of a large, plain fire-box, with sliding door, rather than the brick arch. Mr. Robinson, of Hamilton, Ont., also related his experience with various fire-boxes in England, on the London & Northwestern road, and stated his conviction that a plan might be adopted combining the Jauriet fire-box and the Cudworth box, which would be an improvement on either the plain or brick arch boxes.

INVITATIONS ACCEPTED.

W. A. Robinson presented a report of the Committee on Invitations, thanking the Waltham Watch Company for the invitation to visit their manufacture and regretting that it came too late to be arranged for. For Tuesday evening an invitation was accepted to visit the Boston Theatre; for Wednesday afternoon an invitation of the Bay State Iron Company for an excursion down the harbor; for Thursday afternoon a carriage excursion in the suburbs; and for Friday an invitation of the Rhode Island Locomotive Works, an excursion to Providence and Rock Point.

On motion of Vice-President Chapman, of Cleveland, Ohio, a committee of five was appointed to suggest subjects for discussion at the next annual convention, the following gentleman constituting it: Messrs. J. M. Boon, Fort Wayne, Ind.; M. N. Forney, of New York; O. J. Perrin, of Taunton, Mass.; W. A. Robinson, of Hamilton, Ont.; and W. B. Smith of Charleston, S. C.

The convention then adjourned until Wednesday morning at 9 o'clock.

TRAFFIC AND EARNINGS.

The receipts of the Marietta & Cincinnati Railroad for the month of May were: 1872, \$158,717; 1871, \$119,650; increase, \$39,067, or 33 $\frac{1}{3}$ per cent.

The receipts of the Toledo, Peoria & Warsaw Railway for the month of May were: 1872, \$117,471.19; 1871, \$94,700.23; increase, \$22,761.96, or 24 per cent.

The receipts of the St. Louis & Iron Mountain Railroad for the month of May were: 1872, \$187,635; 1871, \$117,664.71; increase, \$69,960.29, or 39 $\frac{1}{2}$ per cent. For the five months of the year ending with May, the receipts were: 1872, \$978,307.01; 1871, \$640,483.25; increase, \$337,823.77, or 32 $\frac{1}{2}$ per cent.

The estimated earnings of the Erie Railway for the month of May were: 1872, \$1,729,211; 1871, \$1,443,373; increase, \$285,838, or 20 per cent. For the months of April and May the receipts were: \$8,325,809; 1871, \$2,697,327; increase, \$1,628,482, or 28 $\frac{1}{2}$ per cent.

The annual report of the Chesapeake & Ohio Canal Company for 1871 shows the gross earnings to have been \$495,554.08; expenses, \$212,006.96; net earnings, \$283,547.07. For the first five months of 1872 the receipts were: \$146,490.46; expenses, 100,650.09; net earnings, \$45,840.37. A large increase in traffic is expected when the Cumberland Valley and the Western Maryland roads are completed to the Potomac.

The receipts of the Kansas Pacific Railway for the month of May were: 1872, \$334,285.05; 1871, \$306,944; increase, \$29,341.05, or 9 per cent.

The earnings of the Chicago & Alton Railroad for the month of May were: 1872, \$440,457; 1871, \$461,290; decrease, \$20,833, or 4 $\frac{1}{2}$ per cent.

The earnings of the Cleveland, Columbus, Cincinnati & Indianapolis Railway for the month of May were: 1872, \$378,493; 1871, \$277,400; increase, \$101,097, or 36 $\frac{1}{2}$ per cent.

The earnings of the Lake Shore & Michigan Southern Railway for the month of May were: 1872, \$1,471,467; 1871, \$1,190,083; increase, \$281,434, or 23 $\frac{1}{2}$ per cent.

The earnings of the Milwaukee & St. Paul Railway for the month of May were: 1872, \$580,432; 1871, \$602,368; decrease, \$81,936, or 13 $\frac{1}{2}$ per cent.

The earnings of the Michigan Central Railroad for the month of May were: 1872, \$545,819; 1871, \$480,848; increase, \$64,471, or 13 $\frac{1}{2}$ per cent.

The earnings of the St. Louis, Alton & Terre Haute Railroad for the month of May were: 1872, \$146,970 (fourth week estimated); 1871, \$134,390; increase, \$12,580, or 9 $\frac{1}{2}$ per cent.

The earnings of the Toledo, Wabash & Western Railway for the month of May were: 1872, \$510,792; 1871, \$453,009; increase, \$57,783, or 13 $\frac{1}{2}$ per cent.

The earnings of the Western Union Railroad for the month of May were: 1872, \$70,058; 1871, \$82,725; decrease, \$12,669, or 15 $\frac{1}{2}$ per cent.

The receipts of the St. Louis, Kansas City and Northern Railway for the first week in June were: 1872, \$65,574; 1871, \$46,237; increase, \$19,337, or 42 per cent.

At an adjourned meeting of the Manchester and North Wear Railroad Company, held at Manchester, N. H., June 8th, the following directors were elected: Elihu S. Nutter, William Parker, Clinton W. Stanley, Joseph T. Goss, Horace P. Watts, John M. Hunt and Charles Chace. Subsequently E. S. Nutter of Concord was elected President, Josiah Carpenter of Pittsfield Treasurer, and George R. Fowler of Concord, Clerk.

The receipts of the Indianapolis, Bloomington & Western Railway for the month of May were: 1872, \$125,287; 1871, \$77,975; increase, \$47,312, or 60 $\frac{1}{2}$ per cent.

The earnings of the Ohio & Mississippi Railway for the month of May were: 1872, \$272,310.07; 1871, \$205,964.97; increase 1872, \$66,345.10, or 32 $\frac{1}{2}$ per cent.

The receipts of the Great Western Railway of Canada, for the week ending May 24, were: 1872, £28,213; 1871, £16,658; increase £6,555, or 39 per cent.

The receipts of the Grand Trunk Railway for the week ending May 25, were: 1872, £33,500; 1871, £31,200; increase £2,300, or 7 per cent.

MISCELLANEOUS.

The difficulty between the Union and Kansas Pacific railroads, in regard to the price of transportation west of Cheyenne, which has been the subject of several hearings by the House Committee on Pacific Railroads, will be dismissed by the committee without action and referred to the companies for mutual settlement.

A new drawing-room car on the Vandalia Line has a cabinet organ and a handsome writing-desk for the accommodation of passengers.

The Springfield *Republican* calls attention to the fact that during the building of the Boston & Albany Railroad the laborers worked regularly 14 hours a day. Commencing at 4 a. m. they labored till 6, when they had three-quarters of an hour for breakfast; then till 12 $\frac{1}{2}$, when they had another three-quarters, and then till 8 o'clock in the evening. This was many years ago.

The Iowa Railroad Land Company reports sales in May last of 15,419 acres to 159 settlers, and for an aggregate of \$104,298, the average being \$6.70 per acre.

Mobile cotton buyers are congratulating themselves on a low rate for compressed cotton, which has been carried by way of the Mobile & Ohio road to Corinth, the Memphis & Charleston to Chattanooga, the East Tennessee, Virginia & Georgia to Bristol, the Atlantic, Mississippi & Ohio to Norfolk, and by sea thence to New York at 80 cents per hundred for compressed bales. The distance by rail is 1,195 miles.

The caboose of a freight train on the Chicago, Rock Island & Pacific Railroad was struck by lightning recently while in motion, and the conductor, brakeman and baggage master prostrated, though not seriously injured.

The Court of Appeals of New York has decided that on a railroad running through different States, the liability of a company for injury to a passenger is governed by the law of the State in which he is ticketed, and not by that of the State in which the accident occurred. So a passenger who bought a ticket for passage on the Erie Railway from Attica, N. Y., to New York, and was injured by an accident which occurred to the train in the State of Pennsylvania, recovered \$35,000, though by the law of Pennsylvania the liability of a railroad company for injury to a passenger is limited to \$3,000.

Mr. B. L. Boulineau has resigned his position as Master Mechanic of the Central Railroad of Georgia. Mr. Boulineau has been connected with the road for a number of years.



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Editorial Announcements.

Address.—The RAILROAD GAZETTE will be printed for the present in New York; our printing house in Chicago having been destroyed. All communications, therefore, whether editorial or business, should be directed to the New York office. The proprietor will receive subscriptions and advertisements at his office in Chicago, Nos. 63 and 65 South Canal street, but letters should be addressed to New York.

Correspondence.—We cordially invite the co-operation of the railroad public in affording us the material for a thorough and worthy railroad paper. Railroad news, annual reports, notices of appointments, resignations, etc., and information concerning improvements will be gratefully received. We make it our business to inform the public concerning the progress of new lines, and are always glad to receive news of them.

Articles.—We desire articles relating to railroads, and, if acceptable, will pay liberally for them. Articles concerning railroad management, engineering, rolling stock and machinery, by men practically acquainted with these subjects, are especially desired.

Inventions.—No charge is made for publishing descriptions of what we consider important and interesting improvements in railroad machinery, rolling stock, etc.; but when engravings are necessary the inventor must supply them.

Advertisements.—We wish it distinctly understood that we will entertain no proportion to publish anything in this journal for pay, EXCEPT IN THE ADVERTISING COLUMNS. We give in our editorial columns our own opinions, and those only, and in our news columns present only such matter as we consider interesting and important to our readers. Those who wish to recommend their inventions, machinery, supplies, financial schemes, etc., to our readers can do so fully in our advertising columns, but it is useless to ask us to recommend them editorially, either for money or in consideration of advertising patronage.

A CHANGE IN THE COURSE OF TRAFFIC.

Within a few years the number of railroads across the State of Illinois from east to west has greatly increased, and a large part of the lines, long or short, lately constructed or now in progress may be classed with these lines or considered as feeders for them. These roads are intended to carry the traffic of Illinois and the country beyond it directly to the East. While the other roads of the State which extend into the territory south of Chicago have had their chief value as carriers of traffic to and from Lake Michigan, their eastward-bound traffic especially has been transshipped at Chicago, and they may be very appropriately termed Chicago railroads.

As most of the products of the State find their ultimate market in the East, and as the largest part of the territory which consumes them is south—at least not north—of the latitude of Chicago, that city is not on the most direct route between the territory south of it and the country which it supplies. Air lines to Philadelphia, New York, and even Boston, from Rock Island, St. Joseph, Leavenworth, Kansas City, Quincy, Peoria and all the territory further south, will cross the Indiana line south of Chicago. The natural rail routes from producers to consumers would not pass through that city.

But the produce of these places, nevertheless, has gone to Chicago chiefly, for several reasons. One, and the chief one, is because most of such produce—notably the grain—is carried cheapest by water, and therefore seeks the nearest lake port, which is Chicago. Most of the other reasons follow from this. The traffic has gone to Chicago because until recently the only rail routes to the East lay through that city, and they were so placed because it was the nearest port; it has gone there again because it was the great market for that territory, both for selling and buying, and its position on Lake Michigan gained it this advantage; it goes there chiefly still because the immense bulk of traffic between it and the East enables its railroads to the East to carry at cheaper rates than can be afforded for equal or even shorter distances on the lines further south, and this is another advantage owed to the others, which have made the city what it is, all having their origin in its position

as the most accessible port for traffic bound to or from the country west and south of it.

On the east and west lines south of Chicago the stations which are the same distance from New York as is Chicago, by the lines as operated, are nearly all in Illinois not far from its eastern border, and the distance to New York by way of Chicago from those places and those west of them is usually just as much greater than the direct route as they are distant from Chicago. For instance, Hoopestown on the Chicago & Danville road, 104 miles south of Chicago, and Danville, on the same road, 128 miles from Chicago, are just about as near New York by the Toledo, Wabash & Western as is Chicago by the Lake Shore & Michigan Southern, the latter being a part of both routes. So Watska, on the Danville road, 82 miles from Chicago, Paris, which by a short line now in progress, will be 170 miles from Chicago, and Marshall, on the Vandalia road still further south, are no further from New York by the route on which run the cars passing through them than is Chicago by its shortest line.

Generally, we may say that all points on a line from Chicago to Shawneetown are equally distant from New York, and that the chief reason why Chicago draws traffic from the country south of it is because the cost of transportation is less by its line than by the southern ones.

So long as the lakes formed almost the only route for the transportation of the grain of the Northwest, Chicago had little to fear from these southern lines. But, as we have chronicled from time to time, the tendency has been constantly toward an increase in the proportion as well as in the gross amount of the grain transported in bulk by rail from producer to consumer, even on the lines to Chicago. This tendency has been favored by the southern lines, which have seen in it an opportunity for improving greatly their traffic, long comparatively light and unprofitable. Certainly when railroads were taking grain from Springfield, Decatur, Peoria, Quincy and Bloomington by rail to New England by way of Chicago, lines a hundred miles or more shorter ought to be able to more than compete with them. Indeed this cultivation of a through grain traffic has been of the greatest importance to all those lines which do not reach Chicago, and they seem to have appreciated the fact and developed this traffic until now it has reached an enormous bulk, likely to grow every year greater unless some considerable cheapening of transportation by the water route shall have been produced by an improvement such as the opening of a channel to the sea for lake vessels.

The amount of this traffic is illustrated by the business of the Toledo, Wabash & Western Railway, whose report for 1871 has been published recently. By this it appears that there was carried on this road during the year no less than 15,590,512 bushels of grain of all kinds, besides flour equivalent to more than three million bushels more. The increase in grain traffic over 1870 was no less than 63 per cent. and in flour shipments 20 per cent. This is an enormous traffic and an enormous increase, but it will be best appreciated by a comparison with the grain traffic of Chicago—the great grain-receiving depot of America. In 1871 that city received about 80,000,000 bushels of grain, including flour, which is only four and one half times the amount carried by the Wabash road alone. This line, lately scarcely counted in the competition for grain traffic, now shows a business scarcely surpassed by the best Chicago roads.

Of course the Wabash road did not get all of its grain traffic from the district which is usually considered tributary to Chicago—that is, the country west of Indiana; but it did receive a very large traffic from that territory, amounting, as one may find by examining the tables of shipments from stations given in the report, to 57 per cent. of its entire flour shipments, 26 per cent. of the wheat, 67 per cent. of the corn, 45 per cent. of the oats, and 70 per cent. of the other grain—about 55 per cent. of the entire grain and flour traffic.

Nor must it be supposed that most of these shipments are made from stations which have no connection with Chicago. If we look at the crossings of Chicago roads—Danville, Tolono, Decatur, Springfield, Jacksonville, Camp Point, Quincy, Keokuk and St. Louis—we will find that these places supply more than one-third of the road's corn receipts west of Indiana, and that two of them give it nearly a million and a half bushels, exceeding the total tonnage of freight of all kinds shipped to Chicago from the same points. According to its mileage in Illinois, its grain receipts were just about equal to those of the Illinois Central for Chicago.

We have spoken thus particularly of the Toledo, Wabash & Western Railway, because its report supplies definite information of the different articles of freight and the amounts of each received at each station. But the reports of earnings given by other similar lines indicate that they are enjoying a similar prosperity, doubtless from a similar traffic. The Toledo, Peoria & War-

saw and the Indianapolis, Bloomington & Western report enormous increases in earnings. The lines further south do not report regularly; but their traffic, too, is heavier than before and still increasing. New lines and branches are constructed, which will further encourage this diversion of traffic, inasmuch as they cannot well be used to carry grain to Lake Michigan. The Wabash road itself has in operation in Illinois this year about 150 miles of new road, which run through the best grain-producing districts of the State. The Plymouth Kankakee & Pacific will have a hundred miles of road in Illinois just below Chicago, intended to carry traffic not to but away from that city. Such lines as the Decatur, Sullivan & Mattoon, the Danville, Tuscola & Western, the Danville & Mattoon, the Paris & Decatur, the Indiana & Illinois Central, the Danville & Paxton, the Urbana & Havana, which now are likely to be completed, are likely to increase this direct traffic eastward, simply because they cannot be used otherwise to advantage.

So long as the cost of rail transportation is so near to that of water transportation as it now is, we may expect a large part of the grain of the Northwest will be shipped through to the East by rail, and as the difference in cost decreases these rail shipments will increase. And for through shipments by rail from points south of Chicago the shortest route is not through Chicago. Should the day come when water and rail rates are equal, scarcely any grain would be shipped by water, and, doubtless, comparatively a small part of that produced south of Chicago would go to or through it. On the other hand, the produce of the territory north of it, including the large amount shipped to other lake ports, would pass through it. These shipments through a city, however, are of very little importance to it. Cars once loaded with grain are not likely to be unloaded or to stop until they have reached their final destination. If grain ceases to go into Chicago elevators, it matters little to that city whether the cars loaded with it go through its limits or through Indianapolis. Its importance as a grain market ceases when it ceases to be a point for the transshipment of grain. With all the grain of the Northwest passing through it, its grain trade might be no greater than the commerce of the village at Niagara Falls with all the waters of the great lakes flowing by it.

It is evident, that for Chicago and for the railroads having their eastern and northern termini at Chicago, it is important that the cost of transportation by water be kept below that by rail. Reduce the cost of carriage by lake to tide-water a few cents on a bushel, and the through transportation of grain by rail becomes unprofitable, and all that bulky produce will seek the lake ports. Hitherto the progress has been on the other side. The cost of transportation by rail decreases with the progress of improvements and the rapid increase in the bulk of the traffic. On the other hand, the amount of the traffic has little effect on the cost of transportation by lake, so long as it is easy to get a load for a vessel; and improvements in lake navigation, which has had the attention of mankind since the world was young, cannot be expected to equal in extent those in railroad transportation, an invention of this generation.

But while there may be little hope of considerable improvements in the instruments of navigation, in this case there is abundant room for improvement in its channels. Remove the barriers—comparatively not formidable—which now virtually confine navigation, for vessels of sufficient capacity to be used with advantage, to the waters west of Buffalo, open for these vessels an easy channel to Oswego, Montreal, Quebec, the Atlantic, and Chicago and other western lake ports, and the railroads which carry produce to them will again have almost undisputed control of the traffic of the upper Mississippi Valley.

THE ERIC ELECTION will be held on the 9th of next month, and some of the English stockholders express anxiety that it be fairly conducted and that an honest and capable board be chosen. As the English holders control probably nine-tenths of the stock, and there is no possibility of any election except by a majority of the shares, if they do not have a management to suit them, they will have no one but themselves to blame. There seems to be nothing in the way this year of the operation of the road to the utmost advantage. The coal production, which last year was interrupted for months, is now and promises to continue to be exceptionally large, and gives this road a heavy business; general traffic is larger probably than ever before, and rates have been well maintained, and there seems now to be no reason for believing that there will be such absurdly low reductions as have ruled on west-bound freight several months of each year recently. The traffic of the road for the two months reported shows a large increase, and if the working expenses are not reduced to the smallest amount practicable, it is not for want of power in the shareholders.

There is, of course, considerable curiosity as to the choice of the shareholders. The report is that there is after all no understanding between the Bischoffsheim & Goldschmidt and Heath

& Raphael parties. But if the other report, that the former controls 415,000 shares to the latter's 171,000, is true the Heath & Raphael party would seem to be powerless. A majority of the shares, however, is more than 415,000, though twice that number is not likely to be voted. It has been estimated in one of the London papers that Mr. Gilson Homan, the Vice-President of the Great Western Railway Company of Canada, holds most of the English proxies, and is likely to dictate the choice of directors and officers.

Perhaps it is because of the close relations of the Great Western with the Michigan Central and the assumed possibility and desirability of uniting these with the Erie, as against the New York Central, that Mr. James F. Joy, President of the Michigan Central, has been named as the coming man for the Erie presidency. Mr. Joy, doubtless, would be a good man for the place, if he could be induced to serve—at least we imagine that there would be no complaint of the robbing of the road by its own officers under his administration; but a combination of the Great Western and Michigan Central and their tributary lines with the Erie is beset with difficulties not easy to surmount or avoid.

THE AMERICAN SOCIETY OF CIVIL ENGINEERS, whose annual convention was held in Chicago last week, requires a large part of our space this week. We give a pretty full account of the proceedings, reported expressly for us, and letters which relate the experiences of the journey. The appreciation in which the profession is held was abundantly made known during the excursion and the session; and it is evident that whether people think of engineering as a "regular profession" or not, they believe that engineers are very important members of the community, worthy of attention, respect and honor. We doubt whether any association of clergymen, lawyers or physicians would have received greater consideration or more general respect.

The publicity of this excursion and convention will, we believe, be productive of great good. The excellent Chicago daily papers reported its proceedings with considerable fullness, and its movements were generally chronicled wherever it spent a day on its route. The result is that a great many people in the United States now know that there is an American Society of Civil Engineers—a fact of which heretofore most of them have been ignorant; and engineers themselves, seeing the Society recognized and honored by the community, are more likely to look upon it with respect and aspire to membership as an honor, the reward of ability demonstrated in the practice of their profession.

THE MASTER MECHANICS' ASSOCIATION assembled in Boston last Tuesday to hold its fifth annual convention. We give elsewhere a report of the first day's proceedings. The number in attendance was larger than ever before, and the reports and discussions, as reported for that day, are the best in the history of the Association, indicating that the organization is making real progress and finding out where its proper work lies and how to do it. The number of those who engaged in the discussion and the pointedness of their remarks, indicating that they had considered the subject and formed opinions, was especially notable and commendable. Evidently if the convention held out as it began, it was altogether a success that the members may be proud of.

We will in our next issue complete the report of the proceedings of the Association.

NEW PUBLICATIONS.

Modern Examples of Road and Railway Bridges.

This is a serial work, which Messrs. William H. Maw and James Dredge, the editors of that admirable professional journal *Engineering*, are preparing, and which is published from the office of that paper; so far we have received three parts, which enable one to judge very well of the character of the work. In form it is a large quarto, the pages being very nearly as large as those of the RAILROAD GAZETTE. The text, of which in these three parts there are 80 pages, is handsomely printed on very heavy and fine white paper, and the plates, of which there are 48 in the three numbers, twelve covering two and the rest one page, are most beautiful examples of wood engraving and of wood-cut printing. They are on extra heavy tinted plate paper, and a luxury to the eyes of all who can appreciate good engravings.

A considerable portion, both of text and engravings, has appeared heretofore in *Engineering*.

The work is scarcely at all theoretical, but chiefly descriptive, and with the exception of a few pages devoted to the discussion of each general class of structures, consists in descriptions of separate works. Nowhere, we believe, can be found an account of so many of the more important modern bridge structures. The first number has a number of wrought-iron arch bridges, chiefly British works, but including one in Austria and one in Australia. A number of these works are viaducts for carrying gas mains. The second part described bridges on the Nicolai Railroad of Russia, both the timber bridges built by the American contractors and the iron structures with which they are being replaced; a cast-iron arched bridge over Regent's Canal, designed by Mr. John Fowler; a suspension bridge at Singapore, in the East Indies; rolling and swinging draw-bridges for foot passengers at the Grand Surrey Docks; an aqueduct and a bridge built in France of the peculiar concrete known as Coignet's *béton agglomér*, and a large number of special works connected with the London underground railroads—the "Metropolitan" and the "Metropolitan District," including general plans and sections, sewer crossings, bridges, and the Kensington station roof.

The third part also is also largely devoted to the works of the London underground railroads, including two stations. It has also a description of the great Smithfield Market Station, of a

railroad bridge over Regent's Canal, a cast-iron arch bridge over the Trent at Nottingham, a suspension bridge of two half spans over the Moldau at Prague, the widening of the Victoria Bridge over the Thames at Pimlico, and the bridge over Farringdon street, London, in what is known as the "Holborn Valley improvement," besides plates of the Mount Union Bridge, which carries the Pennsylvania Railroad over the Juniata River, and a draw-bridge at Copenhagen.

The great value of the work is in its illustrations, which give details as well as complete structures, and enable the engineer to get a better idea of the various works than can be gained otherwise without a personal examination of them.

The work is to be completed in six numbers, and in those yet to be issued there will be descriptions of a very large number of American works, including the Cincinnati and Clifton suspension bridges and the Kansas City and Quincy bridges.

The Civil Engineers' Convention.

[EDITORIAL CORRESPONDENCE.]

CHICAGO, JUNE 6, 1872.

After the letter which appeared in the GAZETTE last week was written, the party of engineers who were on their way to Chicago to attend the annual convention made a short excursion from the Cataract House at Niagara Falls to Lewiston, for the purpose of inspecting the railroad suspension bridge, the location of the Lewiston road, and the old suspension bridge which was destroyed by a storm ~~some~~ years ago at the latter place. The special train was provided by Mr. C. H. Fisher, a member of the Society and the Chief Engineer of the New York Central & Hudson River Railroad. The location of the Lewiston road is on the side of the cliff which extends along the Niagara River from the falls to Lake Ontario. The distance from the roadway to the river below is about 200 feet. This, and the fact that the river is a violent, resistless torrent, makes an accident a very fearful subject for contemplation, but which has nevertheless a sort of power of enchantment which few can resist dwelling upon.

Immediately above the old bridge at Lewiston is a short tunnel through shale rock. This continued to fall, until it was found necessary to arch the roadway over to guard against accidents. It now presents a very curious appearance, having a lofty arch about 40 feet high in the center, with another opening above it, made by the disintegration of the rock.

The main cables of the old bridge are still hanging from the towers across the river, and are apparently uninjured, but the roadway is nearly all blown down; only a few fragments are still suspended, and vibrate in a sort of melancholy swing with every passing breeze. The span of the bridge is a little over 1,000 feet, and at the time it was built it was the longest span in the world. The new carriage-way suspension bridge just below the falls, has, we believe, a still greater span; but we have not the requisite data at hand to describe it accurately. The latter has a roadway wide enough for a single carriage and a foot-way. The towers on each side are made of timber, and are being covered over to protect them from the weather. At the top of each is a sort of observatory with an elevator for visitors. The latter is not yet completed, so we did not visit it. There was of course a great deal of comment regarding the durability of these bridges, and especially of that over which the traffic of the Great Western Railway is carried. All were agreed that the most incessant watchfulness would be required to repair the constant wear which must result from the deflection of the truss caused by every passing train. The destructive effect of this wear is, however, fortunately confined to the truss alone, whose parts are easily repaired or replaced.

On Monday morning the excursion party started for Cleveland. The car which they occupied was switched off at Black Rock—a short distance above Buffalo—and its occupants all alighted to examine the new bridge across the Niagara River, which the Grand Trunk Railway Company is building, and which it will own in common with the Great Western. When finished, this bridge will consist of five spans of 250 feet each, three of 300 feet, and one draw over the canal 190 feet long, and another over the main channel 360 feet long. The shorter draw, one span of 250 feet, and the three spans of 190 feet over the main channel are completed. The bridge extends from the eastern shore of the river to Squaw Island, between which and the Canada shore is the main channel. The road is carried on wooden trestle work over the island. The piers of this bridge presented unusual difficulties in their construction, as the current of the river is ordinarily at the rate of about three miles per hour, and with a strong westerly wind on Lake Erie it is increased to from five to six miles. The piers in the main channel must be built in this current. Four of them are already completed in water from 25 to 35 feet deep. The remaining ones must be put down in water from 40 to 45 feet deep, with rock bottom overlaid with gravel. With the swift current, this will be attended with unusual difficulties. The bridge will be all iron of the Pratt truss form, with "Phoenix" wrought-iron compressive members. The contractor is Mr. C. S. Gzwinski, of Toronto, a member of the American Society of Civil Engineers. The iron work is all made at Phoenixville by the Phoenix Iron Company. The cost of the bridge is estimated at \$1,250,000 in gold.

After examining the bridge the party walked a few rods down to Pratt's rolling mill, and were conducted through it by one of the proprietors.

A special car was provided at Buffalo by Mr. Charles Paine, Superintendent of the Lake Shore & Michigan Southern Railway. The party was here joined by Mr. Peter Eustis, an old engineer, and now employed on this line. The train was stopped at what is known as Eighteen-mile Creek to see a new stone bridge of 80 feet span, which is built to replace a wooden one. It is 26 feet high to the bench wall and 80 feet to the parapet. At Silver Creek an opportunity was afforded to examine hastily another stone arch bridge built on a skew. The beauty

of the masonry of both of these bridges excited universal admiration, and the skillful design and construction of the skew arch was a splendid refutation of the remark attributed to President White, that there is no engineer in this country capable of building such a bridge.

The party arrived at Cleveland about six o'clock and after a hasty supper re-embarked on a visit to the works of the Cleveland Rolling Mill Company, to see the Bessemer process of making steel in practical operation. It returned about eleven o'clock, in very good condition to do homage to Morpheus. The journey to Chicago was continued the following day. The car occupied by the engineers was, however, cut loose from the regular train at Elkhart, and the new shops of the Lake Shore & Michigan Southern road visited. These were designed by Mr. Paine, who at the time was the Chief Engineer of the road. We expect soon to give a full description and illustration of them, and will therefore defer what we have to say until that time.

Chicago was reached about 9 o'clock on Tuesday evening, and the Tremont House was made headquarters. This hotel was the old Michigan Avenue Hotel, and is now kept by the former proprietor of the Tremont. As nearly all the former very excellent hotels of Chicago were destroyed by the fire, those left and others which have been improvised for the occasion are necessarily very crowded. The party of engineers, however, fared sumptuously, owing to the forethought of Mr. Chesbrough, who was one of the Committee of Arrangements. Much curiosity was of course manifested by all the strangers to see the burnt district. The impression produced by it on the writer, who was familiar with the city before the fire and who saw its destruction and ruin, was that the new Chicago was all an illusion, and that the old city as he remembered it was the real thing. Of this feeling it was impossible to divest oneself. Of course those who live here, who suffer the daily and hourly inconvenience and loss which has resulted from the great calamity, have none of the feeling we were half tempted to indulge in, that of making merry at the success of the illusion. To them it is a terrible reality, but one which they have met with heroism, and an energy which is unprecedented. No one, we think, can see the buildings which have been erected and completed without astonishment. That it should be possible in a winter of almost unequalled severity to erect and complete the work which is now represented by blocks of elegant and spacious buildings is certainly very astonishing.

The first meeting of the Engineers' Convention was held in the city council chamber and was called to order at eleven o'clock on Wednesday morning. A full report of the proceedings will be published elsewhere, so we will not attempt a synopsis here but only make some little comment. The list of papers, as will be seen, is quite long, and so were some of the papers. In two sessions of only a few hours each, it was of course only possible to read the papers, and quite impracticable to do them justice in any general discussion. It is therefore quite obvious that if these meetings are to become an annual event, more time must be given to them, and also that if their interest continues to increase at the same rate hereafter as it has this year, that some limit must be put upon the number and length of the papers which are read. One of the inherent vanities of human nature is that each man thinks what he writes is more interesting than what other men write. There is, therefore, always a greater or less amount of watery imbecility, with which a convention of this kind is liable to be deluged, especially if an attentive and intelligent audience is assured. The society would, therefore, we think, do well hereafter to stipulate that a paper which is to be read before the annual convention must be, first, short; second, must be the record of the writer's own personal observation or experience; and, third, must be of such a nature as to have interest and value to those who are to hear and discuss it. All mere compilations from books and individual speculations which have not been demonstrated by experiment should be excluded, and papers which merely give motive power to a grindstone for the purpose of sharpening individual axes should be instantly suppressed. An intelligent committee, to whom application could be made, and whose consent should be required in order to read a paper, ought to be appointed, with the requisite authority to suppress the wind-bags who haunt such meetings. Happily the Chicago convention was but lightly afflicted this year, and was favored with a large number of papers, written with more ability and having greater interest to engineers generally, than we believe were ever read before any similar meeting in this country. That the experiment of holding the annual meetings in a sort of peripatetic way each year, has been entirely successful, and an immense advantage to the society, all who were in attendance were agreed. In this way the co-operation of engineers generally, who are scattered through the country, can be best secured, and their interests in the objects of the association be aroused. A glance at the list of members and others who were in attendance will show as great an array of talent and ability as, we believe, exists in the country, which need only be aggregated into an annual gathering of this kind, to acquire a power of attraction which will draw to itself all kindred elements in the land.

We regret that we are not able to speak favorably of all that was done in Chicago by the members of the society. There was, however, one exhibition of the talents—or, rather, want of such endowments—which was so hopelessly bad that no word of commendation thereof can be uttered. It was determined to have a dinner at the Tremont House on Wednesday evening. After the dinner, extemporaneous speeches were demanded, and one victim after another was ruthlessly called forth. The utter inability in this line of nearly all—with a very few exceptions—who attempted to speak was lamentable, and showed conclusively that engineers are not orators, and that they can build bridges of iron with more success than of words, and that they are more proficient in mathematics than in rhetoric. What was said, however, had the merit of brevity at least, and

possibly the dinner would have been very little more enjoyable if the speeches had been more in number and of greater length.

We omitted to state in the proper order that on Tuesday afternoon the whole party visited an arch which covers the end of the tunnel for supplying water to the city. It is about a mile from the shore, and was built by Mr. Cheshire. The tug was provided by Mr. O. B. Green, and the whole party navigated the South Branch of the Chicago River after their visit to the crib. On their return to the foot of State street carriages were provided, in which all who felt so disposed rode over the burnt district of the city.

On Thursday, after the adjournment, those who were in attendance separated. A larger number of them went on an excursion to St. Louis. The writer, desiring to attend the convention of master mechanics in Boston, was obliged to start immediately for the East.

Movements of the Society after the Session.

PITTSBURGH, June 10, 1872.

TO THE EDITOR OF THE RAILROAD GAZETTE:

I suppose you wish simply to have a bare statement of the movements of the society since your departure, and even that is something of an exertion, for everybody is about used up by this time.

The same attentions which the society had received elsewhere were met on our arrival in St. Louis, Friday morning, from the Engineers' Club and people there. Carriages were provided for our conveyance through the Fair Grounds and to the Water Works, Mayor Brown politely halting each one as it passed to welcome us.

A pair of "Bull" Cornish engines raise the water at the river about 50 feet, where it is successively received by three "settling" ponds, each of about twenty-five millions of gallons, and thence flows into another communicating with the main pump well. Here there are two large engines of the Hartford Cornish style, which force the water into the main reservoir at the rear of the city, through mains about four and one-half miles long, using a "stand pipe" of about one hundred feet in height at half a mile distance.

A part of the original plan of Mr. Kirkwood was to have large filter beds between the settling pond and the pump well, but it has not been carried out. All this machinery is of good workmanship, and well proportioned for about 25,000,000 gallons of water daily. The buildings of tasteful design, with examples of some of the finest masonry in the country.

The next, and of course to us the great, work of interest to visit was the bridge of Captain Eads. You of course are familiar with its general design—1,650 feet to be spanned by three arches, with piers and abutments having their foundations laid a hundred or more feet below the river under difficulties such as have been met with in only one other instance (the East River Bridge, being built by Colonel Roebling), and overcome in the same manner. We had much less time than desirable to examine the great number of detail drawings in Mr. Katie's office, but found much to admire in the work itself—none more substantial exists in the country than the stone arches, abutments and piers, which are nearly enough completed to show what they will be, and to receive the steel arches being made in Pittsburgh.

We received again the same Western hospitality at Louisville on Saturday, culminating in a delightful lunch at the residence of Mr. W. B. Belknap, after our visit to the fine water works of that city.

Every one was charmed with that beautiful city—its fine streets, magnificent private residences (and I think, of the best architectural taste of any city we have seen), surrounded, in almost every instance, with ample, well-kept grounds—and the courtesy of the gentlemen whom we met makes Louisville a city ever to be remembered by us.

The water works of Louisville are of the very first class, and were very interesting to us by many peculiarities and improvements not met elsewhere.

We also visited the celebrated railway bridge, which, built by Mr. Fink, one mile in length and one hundred feet above the Ohio, cost only one and a half million dollars. One of the most remarkable examples in the world is the part over the main channel, being four hundred feet long in a single span.

Another great work visited by the society was the locks of the Ohio Canal, 350 feet in length by 80 feet in width, and having gates to resist a head of fifty feet. We also spent an hour at the railroad shops and Mr. Fink's bridge building works, with much interest.

An elaborate dinner at the Galt House and a special train provided by the courtesy of the Louisville, Cincinnati & Lexington Railroad enabled us to reach Cincinnati a little after midnight, very tired and disposed to enjoy Sunday absolutely as a day of rest. But even there our society found its friends, determined to make us remember every hour of our Western visit by their kindness.

An elegant luncheon at the house of Mr. Lovett, Chief Engineer of the Ohio & Mississippi Railroad, convinced us that the man who could in twenty-four hours change the gauge of 600 miles of railroad was equally skillful in another branch of the profession.

Of course, although it was Sunday, we inspected the magnificent Suspension Bridge across the river, and the fine water works of the city, where there is one of the largest steam cylinders in the world, viz., 120 inches diameter by 15 feet stroke.

A delightful ride to the high hills of Clifton in the evening, gave us some fine views, and we left Cincinnati only regretting that our stay could not be prolonged for a week.

We arrived in Pittsburgh at noon to-day, where we found Mr. Shinn and other gentlemen had provided everything for our entertainment in the most magnificent style.

This afternoon we were provided with a special train to visit the Keystone Bridge Works, invited by Mr. Linville, President

of the company. Our great interest was to see the arches of the St. Louis Bridge. As you know, all this is composed of steel—chromo steel—the extrados and intrados of the arches being essentially of a single curved tube 18 inches in diameter, made up of straight sections 12 feet in length, which abut each other. Each of these tubes is made up of six staves held together by hoops and sheet bands tightly wedged in, the last stave being forced in by a hydraulic press. The appliances of new machinery and ingenious devices used for the insurance of the most perfect accuracy of fit and workmanship were of the greatest interest to us. The last section of each arch is screwed into an immense nut, which, from having its rear surface at an angle with the axis, and extended for lugs for the anchorage bolts, is called a "skew back." They are, however, really nuts, and probably the largest in the world, their bolts (the arch tube) being 18 inches in diameter. After this we visited the new and, I believe, largest smelting furnace in the country, having 20 feet bosh, and a cast was made while there.

The steel works of Parks & Co. ended the day. More to do to-morrow, and leave for New York at 5:30 p. m.

CLARK FISHER.

Train Accidents in May.

We continue below our record of train accidents, which we have made as complete as we could with the information attainable.

On the morning of the 6th, the last section of a series of freight trains going east on the Northern Division of the Lake Shore & Michigan Southern Railway ran into the one ahead of it near Huron, Ohio, the first having but just started up and going about four miles an hour, and the other running about fourteen miles an hour. The pilot of the engine bent down when it struck the car and caught under the ties, and the engine was pretty well torn up, and the engineer had his leg crushed so that it was feared he would die. The caboose of the forward train was somewhat damaged. The track was blocked for nearly eleven hours.

On the night of the 8th, the fast express going north on the Maryville Branch of the Kansas City, St. Joseph & Council Bluffs Railroad broke through a small trestle bridge over a ravine about three miles north of Maryville, Mo. The supports of the bridge are reported to have been undermined by water. The engine and baggage car went down; the engineman was killed and the baggage-master and fireman were injured, but not seriously.

On the evening of the 9th, the westward-bound accommodation train of the Missouri Pacific Railroad and an eastward-bound freight train on the same road ran into each other at a station. The freight train was trying to get on the side track, but did not make it in time, or else the passenger train was ahead of time; both engines were badly damaged, the baggage car was badly broken up, and some passengers were pretty well shaken up.

On the morning of the 9th, the locomotive "Charles Miller," on the Utica & Black River Railroad, exploded in front of the depot at Watertown, N. Y., while making up a train. The engine was literally blown to pieces. The fireman was thrown through the cab window, but was not hurt; the engineer was not moved from his place nor in any way hurt; but a man riding on the tender was slightly cut in the neck.

At noon on the 13th, the engine and twelve cars of an empty coal-train ran off the track of the Erie Railway at Vail's Gate Junction, five miles from Newburg. The conductor and fireman were slightly injured.

On the afternoon of the 14th, a bridge gave way under an accommodation train, on the Hudson Branch of the Boston & Albany Railroad, 1½ miles east of Hudson, N. Y. The locomotive passed over safely, the tender and four freight cars fell through the bridge, and a passenger car at the rear of the train remained safe on the other side. No one was hurt. "The giving way of an abutment" is assigned as the cause; but no reason for its giving way is hinted at.

On the 15th, a passenger car containing about 40 passengers on the Vermont section of the Portland & Ogdensburg Railroad, ran off the track and fell on a ledge of rock eight feet below. Two ladies are reported "seriously if not fatally" injured, and the fireman had a leg broken, and many received slight bruises.

On the 16th, a passenger train on the New Haven & Derby Railroad ran into a drove of cattle in West Haven, Conn., killing four of them, and throwing the engine and tender off the track, severely injuring the engineer and slightly injuring the fireman. The engine rolled down the embankment, about fifteen feet high, and was badly damaged.

On the morning of the 18th, the drawbridge of the Erie Railway at Newark, N. J., having been left open through carelessness, engine 293 and three cars ran into the Passaic River at Newark. No one was hurt. There was a dense fog at the time and the engineer was unable to see that the bridge was open until too late to stop, but the train was slackened. The damage is estimated at \$5,000.

On the 20th, the engineer of the mail train on the Long Island Railroad discovered two sticks of cord wood which had been placed across the track. He called for brakes, uncoupled the engine, and thus saved the cars, but went down a steep embankment himself with his engine. He was not much hurt, and the passengers made up a purse of \$100 for him.

On the afternoon of the 21st, a freight train bound east on the Kansas Pacific Railway ran off from the track about three miles east of Tishomingo, at a curve where the section-man had removed a rail, and eleven cars, mostly flats, were piled on top of each other. The only injury to a person was the spraining of the engineer's ankle in jumping from the engine. The section-men had placed a red flag out as a signal. The engineer, seeing the flag, whistled down brakes; but just then the section-man appeared on the track and made, as the engineer supposed,

a signal to come on. This the engineer did, until, seeing his danger, he again called for brakes, but it was too late.

On the morning of the 21st, an extra train, which had been standing on the main track to be loaded with staves at a distance from the station, on the Jackson, Lansing & Saginaw Railroad, near Swan Creek, while backing rapidly toward a switch, in order to clear the track for the express then nearly due, ran over two oxen, by which the caboose and four or five cars were thrown from the track, and a boy, who was of the loading party, in attempting to jump from the train was instantly killed, and his brother mortally hurt. Three other men were considerably hurt, and the cars were much damaged.

On the morning of the 22d, a freight train consisting of 35 cars drawn by two engines, when approaching Wadsworth, Nev., on the Central Pacific Railroad, broke into two sections near the summit of a steep grade, and shortly after the rear section broke in two again, leaving ten cars in the middle without a brakeman. The engines were hurried forward to keep them out of the way of the detached sections, which came down the grade at a tremendous speed, and whistled to signal two engines which were waiting for them at the station to get out of the way. These latter were started, but before they could get under sufficient headway the locomotives were upon them, followed closely first by the middle and then by the rear sections broken from the trains. Sixteen cars were broken up, and the four engines were damaged, but no one was seriously hurt.

On the morning of the 23d, about half-past one, two freight trains were to take the side track at Ottawa, Ill., on the Chicago, Rock Island & Pacific Railroad. The first broke in two while taking its place, which caused the following train to remain on the main track. While there an extra freight train ran into its rear and pushed it forward upon the detached section of the forward train, by which six cars are reported totally wrecked, and 24 cars and two engines injured. The report says: "The morning was very foggy, and the engineer on the extra, who is a new man on the line, made a miscalculation as to distance."

On the 24th, the wheel of one of the cars of a southward bound freight train on the Chicago & Milwaukee line of the Chicago & Northwestern Railway broke, about a mile and a half north of Waukegan, Ill., and four cars were thrown from the track and pretty well broken up.

On the 24th, the Cincinnati express eastward bound on the Erie Railway, while running at the rate of 30 miles per hour near Otisville, N. Y., (13 miles east of Port Jervis,) ran into a freight train, which had switched on its track in order to let a way train pass. The two engines came in collision shattering both badly and completely telescoping the baggage car. The baggage master had his leg broken in two places, and was otherwise badly hurt. The engineer and the fireman were also injured. No passengers were hurt.

On the morning of the 25th, as a passenger train on the Cleveland & Pittsburgh Railroad was passing out of Allegheny City, it ran into several cars that had become detached from a freight train. The passenger train was running at the rate of ten or twelve miles an hour, and the freight cars, having become uncoupled on an up-grade, were running at a speed of perhaps five miles an hour. The collision was quite severe, the locomotive and all the coaches, except the rear one, of the passenger train, being considerably damaged, and the freight cars wrecked. A young man who was riding on the platform of one of the passenger cars was killed, and several others received bruises and cuts.

On the evening of the 27th, a freight train on the Orange, Alexandria & Manassas Railroad ran over a cow about eight miles from Alexandria, Va., throwing the engine and cars from the track, killing two brakemen and seriously wounding the fireman.

On the morning of the 27th, as the eastward-bound train on the New Jersey Railroad due at Elizabeth at 9:35 a. m., was approaching the depot in that city, at the crossing of the Central Railroad of New Jersey, the connection between the air brakes was broken, and the train passed the station, which is just at the crossing. In the meantime, the train for New York on the Central Railroad, having the right of way, had left the station at Elizabeth, and had passed the crossing, with the exception of the last car, which was struck and overturned by the locomotive of the New Jersey train. Several passengers were injured, but no one was killed. We learn that the connection between the air pipes was imperfectly made by the brakeman whose business it was to put them together.

On the 27th an accident occurred at the Union Depot, Indianapolis, which the *News* of that city describes as follows:

"A long train of freight cars was standing between the Union Depot and Tennessee street, on the inside track; Vandalia engine No. 10 was waiting just west of this train for the track to be cleared, so as to move over on the Lafayette switch. A freight train drawn by Vandalia engine No. 5 went east on the outside line. The two last cars jumped the 'frog,' ran some distance and struck the tender of No. 10. No. 10 in turn was knocked from the track and hurled against the freight train in front. One freight car was badly broken, another had the trucks jerked loose, a third the draw-bars bent, and a fourth was battered in the rear. The tender of the engine was also considerably scarred."

On the afternoon of the 27th, eight cars, loaded with flour and grain, broke off from a long freight train on the Boston & Albany Railroad, while it was ascending a steep grade between Pittsfield and Dalton, Mass. There was one brakeman on the detached cars, and he was unable to check their movement down the grade before a following freight train approached, when he jumped to save himself. The following train was brought to a stand, but could not be backed in time, and the detached cars came upon the locomotive at great speed, so disabling it that it exploded. One car was burned, two others were entirely wrecked, others injured, the road was obstructed for

several hours, and the direct loss is reported at not less than \$15,000. The engineer and fireman of the wrecked engine saved themselves by jumping.

On the 30th, the fast freight train on the Memphis & Chattanooga Railroad was thrown from the track near Germantown, Tenn., by a bull which climbed upon the track and shoved right to the locomotive. The train was delayed two hours, the engine was somewhat damaged, and the bull was ruined for all practical purposes, as the result of the encounter.

On the 30th, an accommodation train on the Wilmington, Columbia & Augusta Railroad ran off from the track near Grist's Station, N. C., 54 miles west of Wilmington. Two passengers were seriously and five slightly injured, and three cars were wrecked.

About 6 o'clock in the afternoon of the 31st, as a train loaded with ties was being pushed across the bridge over Elk Creek, in the Indian Territory, on the recently-completed portion of the Missouri, Kansas & Texas Railway, 16 miles south of the Arkansas River, the bridge gave way, and the locomotive, caboose and one flat car fell into the stream. One man was fatally hurt and six slightly. The report from which we gain this information says: "The rain on Monday night had raised the stream to such an extent that the whole country is nearly inundated. The bridge is one hundred feet long, and was considered by the engineers one of the safest on the whole line of the road, and was supposed to be above high-water mark, but the water in all the streams in that section is now higher than ever before known by the oldest inhabitants."

On the 31st a work train, consisting of engine, tender, one platform and one caboose car, on the New York Central & Hudson River Railroad, ran into a freight train as it was taking in water at a water station three miles east of Herkimer, without slackening speed. A laborer standing on the work train was killed, the engineer of the work train was seriously injured in jumping from his engine, and a laborer was slightly hurt. It is reported that the freight had proper signals out, but that the smoke from an engine passing in the opposite direction at the time prevented the engineer of the work train from seeing them, and that the crowd of workmen on the platform prevented the setting of the brakes.

On the 31st, while a local north-bound freight train on the St. Louis & Iron Mountain Railroad was ascending Hogan's Mountain, finding the load too much on the steep grade, the six cars in the rear were uncoupled and left with brakes on while the engine went on with the rest of the train. In the caboose, with the cars which were left, was a passenger who is said to have been drunk. He let off the brakes, and the cars ran down the mountain at a fearful speed, and into the head of a passenger train, also northbound, fatally injuring the man who caused the accident, breaking up three or four of the freight cars and badly damaging the passenger engine.

Near the end of the month the locomotive of a coal train on the New York Central & Hudson River Railroad ran into the Erie Canal near Cayuga, the drawbridge having been left open and the bridge-tender being asleep at his post. No one was hurt.

This is an aggregate of 27 accidents in the month, by which nine persons were killed and 33 injured. The accidents may be classified as follows:

Derailed—
By cattle on track..... 4
Malicious obstruction..... 1
Breaking of wheel..... 1
Rail removed..... 1
Unassigned..... 4
— 11

Falling through bridge—
Breaking through..... 3
Draw left open..... 2
— 5

Collisions—
Head collisions..... 2
Rear collisions..... 7
Crossing collision..... 1
— 10

Explosion of boiler.....
Total..... 27

It is worthy of notice that of seven cases of rear collisions four were occasioned by the breaking apart of trains—which may lead to some reflections on couplings. It will be remarked that accidents from broken rails do not appear on the list, having disappeared, apparently, with the cold weather; but their place is partly made up by the number of accidents caused by cattle getting on tracks, which cases are confined chiefly to the grazing season.

Of the deaths, four were by accidents caused by cattle, two by the breaking of bridges, and three by rear collisions. Twelve persons were injured by derailments for which no cause is reported; six by derailments by cattle, three by a head collision, three by rear collision, eight by the breaking of bridges, and one by a boiler explosion.

For the four months past our record stands as follows: February, 21 accidents, 18 killed and 128 injured; March, 27 accidents, 3 killed and 67 injured; April, 22 accidents, 18 killed and 32 injured; May, 27 accidents, 9 killed and 33 injured.

A New Illinois "Railroad Center."

A correspondent of the Chicago *Tribune*, writing from Newman, Douglas County, Ill., says:

"This town will soon be a railroad center. It was first laid out on the contemplated Springfield & Indianapolis Air Line Railroad, which will, in about three weeks, be finished to this point. The Danville & Mattoon will run through here, and the entire stock has been taken, the President having taken \$600,000 himself, and paid up 10 per cent. of his stock in cash. The road is now located, and work will be pushed with vigor. The Charleston & Danville Railroad also crosses at this place, and the work is progressing finely. Also, the Toledo, Thornton & St. Louis Railroad will cross at this place."

The "Springfield & Indianapolis Air Line," of which mention is made, is the Indiana & Illinois Central, and the section so soon to be completed is from Tuscola, on the Illinois Central, east to Newman, about 15 miles.

Chicago Railroad News.

Chicago, Danville & Vincennes.

This company put a second train on its road on the 3d instant, which will be a great accommodation to the people on the line who wish to come into the city in the morning and return home the same evening. This train runs as far as Danville.

The company has received 2,500 tons of iron for its Fountain County Branch, and commenced to lay track this week. It is expected that within a month the coal fields will be reached, when the road will begin at least to maintain itself from freights derived from coal. As the road will enter the noted block coal fields of Indiana, it is quite probable that the company will immediately find a good demand for all the coal they can bring to this city.

Milwaukee & St. Paul.

This company is pushing in towards this city from Milwaukee, and bodies of men are grading within about 15 miles of Chicago. A meeting of the stockholders was held in Milwaukee on Saturday last. This company has made arrangements to land its passengers at the depot of the Chicago & Alton road. Its freight house will be in conjunction with that of the Chicago, Danville & Vincennes road, and the Columbus, Chicago & Indiana Central, near the corner of Carroll and Halsted streets. The grading of the road to Chicago will be done in about a month, and the company will commence to lay rail next week. The road is to be done to this city on the first of October next. The rail is to be all steel. Mr. John C. Gault, Assistant General Manager of the road, will have his office in Milwaukee until the road is opened to this city, when he will transfer it to Chicago. J. E. Chandler, for many years in the superintendent's office of the Chicago & Northwestern, and well known to all railroad men in the Northwest, has been appointed General Agent of the road for this city. The meeting of stockholders in Milwaukee on Saturday resulted in the election of six directors for three years, in addition to the seven who held over for one and two years. These directors were as follows: Fred. P. James, Walter J. Gurnee, James Buell and E. L. Franks, of New York; S. S. Merrill, of Milwaukee; and T. A. Mueller, of Rotterdam, Holland. A meeting of the directors resulted in the election unanimously of Hon. Alex. T. Mitchell as President, and Russell Sage, Vice-President.

Chicago, Clinton & Dubuque.
This road was completed to Bellevue, about 25 miles below Dubuque, on the 7th inst.

Chicago & Northwestern.

At the annual meeting in Chicago, on the 6th, a half-yearly dividend of 34 per cent. was declared on the preferred stock. The dividend is made on the common stock. At this meeting the retiring directors were all re-elected; and the directors have re-elected their officers.

The two Iowa divisions have been consolidated, and the "Iowa Division" now consists of the entire line from Clinton to Council Bluffs, 350 miles. John B. Watkins, heretofore Superintendent of the "Eastern Iowa Division," is made Superintendent of the consolidated division, with headquarters at Clinton.

The company has established a new station one mile north of Winona, on the Milwaukee Division, called "Lakeside." At present it is only a signal station. A large additional force of workmen was sent out from here last week to work on the extension of the Winona & St. Peter road beyond New Ulm. Great progress is being made on the grading of the 140 miles which intervene between New Ulm and the Dakota line, and by the close of the present season it is all to be done and ready for operating. Work is also progressing rapidly on the section between Escanaba and Menomonee. That gap will also be done this season, making a continuous road from Chicago to Lake Superior. On the Baraboo line, the work on the tunnels is progressing as favorably as could be expected. The excavations appear to be made even with less obstruction than could have been hoped from the survey which preceded the commencement of work upon them.

The Sparta *Herald* gives the following report of progress at tunnel No. 8, on the Madison extension:

"The principal work yet done is the deep cuttings and filling in of corresponding valleys until the approaches to the tunnel are reached. A large number of hands are working at these approaches, on either side, and as many as can work to advantage are on the summit sinking vertical shafts by means of machinery. One of the shafts is now 100 feet in depth, and the other over 70 feet. When they reach the level of the track in the tunnel, which is 231 feet beneath the summit of the hill, the excavation of the tunnel will proceed from the bottom of the shaft both ways, and in like manner from the other shaft, making together with the ends six faces in all. The filling at the approach on the western end of the tunnel is about 1,000 feet in length, it being deepest at the entrance to the tunnel proper—about 25 feet—and on the eastern side the approach is through a cutting of about 1,600 feet. West of the tunnel, the next heavy work will be at Schwartzlow's two miles west of the ridge, where there will be a deep fill for a considerable distance, with a couple of sections of trestle-work 70 feet in height, with deep rock cutting through two hills, one on each side of this valley. There are a large number of hands at work on this section, and the work is prosecuted with vigor."

The contract for the erection of a viaduct over the tracks of the company at Kinzie and North Clark street was awarded, last week, by the Board of Public Works, to the Keystone Bridge Company, for \$2,300.

Chicago & Illinois River Railroad.

An application has been made by a company under this name, who purpose to build a railroad to Keokuk, Iowa, to enter the city by way of Egan avenue and Stewart avenue, on the line where the Chicago & Canada Southern ask entrance. It appears to be the intention of this company to make a coal railroad, since the track, as projected, lies through the best portion of the Ver-

million coal fields. The company purpose to build a pivot bridge across the slip at the Union Stock Yards, which has been excavated out at Egan avenue. Two surveys have been made for the road, one by way of Joliet, Braidwood, Logan and Yates City to a point opposite Keokuk, and the other by way of Lockport, Lison and Marseilles.

The Civil Engineers.

The freedom of all the railroads centering in this city seems to have been tendered to the American Civil Engineers' Society last week. Those gentlemen had railroad excursions tendered them in all directions. Some of them went to St. Louis; but the greater portion returned East after the conclusion of the session, either by way of the Lake Shore & Michigan Southern or the Pittsburgh, Fort Wayne & Chicago road.

Chicago News from Belgium.

Following the injunction to go from home to learn the news, we have this information concerning the street railroads of Chicago which will doubtless be quite fresh in the city. We translate from *Le Moniteur des Intérêts Matériels*, of Brussels:

"Chicago correspondence makes note of an important innovation which has just been introduced on the tramway system of that city. It is the substitution of compressed air in place of horses. The trials have given results so favorable that the Common Council of Chicago and the tramway companies of the city have adopted it definitely. As nothing remains to be done except manufacture the machines, it appears that horses will have disappeared completely from the tramways toward the end of the current year. It is estimated that the companies will realize by this improvement five-sixths of actual working expenses."

Chicago, Pekin & Southwestern.

Twenty-five miles of this road are already ironed, and it is all graded. The entire 70 miles will be done between Decatur and Pekin, by the first of September. Track-laying is now being vigorously pushed. The iron was all manufactured by the Joliet Iron & Steel Company. The first-mortgage bonds have been issued and sold. These were issued at the rate of \$10,000 per mile, making an aggregate of bonds equal to \$700,000.

Chicago & Paducah.

Work is being pushed forward on this road as rapidly as possible. The road is mortgaged for \$3,250,000, and the proceeds of the bonds thus raised will be sufficient to build the road to Shawneetown. The bonds are all held by the contractors, and the company owes no floating debt.

Another Depot.

The Chicago, Danville & Vincennes road, with the Columbus, Chicago & Indiana Central, have about completed the purchase of land enough on Halsted street, south of Carroll, for the depot and freight houses, and the preliminary plans are now being drawn for the buildings.

Depressed Tracks.

The Railroad Committee of the Common Council have discussed the matter of depressed tracks on the Chicago, Burlington & Quincy, the Michigan Southern and the Chicago, Rock Island & Pacific railroads, where the tracks intersect the thickly settled portions of the South Division. A resolution was introduced into the Council on Monday evening, granting authority to cause such depression and to construct viaducts over State street, Wabash and Michigan avenues, Eighteenth street, Sixteenth street, Twelfth and Polk streets.

General Railroad News.

PERSONAL.

—Col. John Clark, a well-known railroad conductor, died at Holmesburg, Pa., May 30, aged 50.

—A Freeport, Ill., paper says: "Mr. Z. M. Hibbard, a conductor on the Chicago & Northwestern Railway, has been conductor of a passenger train eleven years, and conductor of a freight train six years. In this time he has rode while on duty, 486,380 miles, a distance equal to twenty times around the earth, or equal to a journey to the moon and back. And in this time Conductor Hibbard has never had a wheel of a passenger or baggage car off the track." The Elgin *Gazette* gives the terms of service of other conductors on the Chicago & Northwestern, by which it appears that George Rogers and Bruce Wilcox, of the Omaha passenger, Proctor Perkins, of the Rockford passenger, and "Doc" Wolcott, of the Clinton passenger, have each been on the road 18 years; L. L. Donelly, of the Freeport passenger, 16 years; Jack Lawrence, of the Dixon passenger, more than 16 years; Edward Bross, of the Elgin and Geneva accommodation, 15 years; William Fish and Levi Safford, of the Freeport night passenger, 14 years, and Jas. Fitch, of the Clinton passenger, 12 years. In the West, where changes are so frequent, these are long periods of service.

—William Odin Hughart has resigned the presidency of the Pittsburgh & Connellsville Railroad Company, to take effect July 1.

ELECTIONS AND APPOINTMENTS.

—At the annual meeting of the Chicago, Rock Island & Pacific Railroad Company, held in Chicago, June 5, the directors whose terms then expired, Messrs. Francis H. Tows and Charles R. Marvin, of New York; Milton Courtright, of Erie, Pa. and Henry H. Porter, of Chicago, were elected for a term of three years. John F. Tracy, of Chicago, was re-elected President; Hugh Riddle, of Chicago, Vice-President, and Francis H. Tows, of New York, Secretary and Treasurer. Of the \$16,000,000 of stock \$15,000,000 was voted.

—At the annual meeting of the Chicago & Northwestern Railway in Chicago, June 6, the following directors whose terms had expired, were re-elected for three

years: Wm L. Scott, Erie, Pa.; Milton Courtright, Erie; Harvey Kennedy, New York; George L. Scott, New York; Wm. H. Ferry, Chicago; J. L. Ten Have, Amsterdam, Holland. The directors re-elected the following officers: President, John F. Tracy; Vice-President, M. L. Sykes, Jr.; Secretary and Treasurer, A. L. Pritchard, New York; Assistant Secretary, J. B. Redfield, of Chicago. The bonds as well as the stock of the company carry votes. About three-fourths of the stock was voted at this election.

—At the annual election of the Winona & St. Peter Railroad Company, a majority of whose stock is owned by the Chicago & Northwestern, the following officers and directors were chosen: Directors, John F. Tracy, Chicago; J. M. Burke, A. G. Dulman, New York; William L. Scott, Erie, Pa.; A. B. Baylis, M. L. Sykes, Jr., New York; H. H. Porter, William H. Ferry, J. H. Howe, Chicago. President, John F. Tracy; Vice-President, M. L. Sykes, Jr.; Treasurer, A. L. Pritchard; Secretary, Samuel O. Howe.

—At the annual election of the Elgin & State Line Railroad Company in Chicago, June 6, the following directors were chosen: John F. Tracy, H. H. Porter, William H. Ferry, Marvin Huggett, James H. Howe, J. B. Redfield, Chicago; M. L. Sykes, Jr., J. M. Burke, A. G. Dulman, New York. John F. Tracy, President; James H. Howe, Vice-President; J. B. Redfield, Secretary and Treasurer. The road is a part of the Chicago & Northwestern, though the organization is maintained.

—At the annual meeting, on the 6th, of the Chicago & Milwaukee Railroad Company (whose road the Chicago & Northwestern owns), the following were elected: Directors, John F. Tracy, Chicago; J. M. Burke, A. G. Dulman, A. B. Baylis, M. L. Sykes, Jr., New York; H. H. Porter, William H. Ferry, J. H. Howe, J. B. Redfield, Chicago; President, John F. Tracy; Vice-President, M. L. Sykes, Jr.; Secretary and Treasurer, A. L. Pritchard. All are either directors or officers of the Chicago & Northwestern Company.

—The Chicago & Northwestern Railway Company, which owns all or nearly all the stock, chose the following directors of the La Crosse, Trempealeau & Prescott Railroad Company June 6: John F. Tracy, H. H. Porter, William H. Ferry, James H. Howe, M. M. Kirkman, Chicago; M. L. Sykes, Jr., A. G. Dulman, John M. Burke, New York.

—At the annual meeting of the State Line & Union Railroad Company in Chicago, June 6, the following were chosen directors: John F. Tracy, H. H. Porter, James H. Howe, William H. Ferry, Marvin Huggett, M. M. Kirkman, J. B. Redfield, Chicago; M. L. Sykes, Jr., New York; E. D. Richardson, Geneva, Wis. John F. Tracy was chosen President, James H. Howe, Vice-President, and J. B. Redfield, Secretary and Treasurer. All these except Mr. Richardson are officers or directors of the Chicago & Northwestern Company, which owns most of the company's stock.

—The directors of the East River Bridge Company have elected the following officers for the ensuing year: President, Henry C. Murphy; Treasurer, John H. Prentice; Secretary, O. P. Quintard; Executive Committee, Seymour L. Husted, Abram S. Hewitt, James S. T. Stranahan, William H. Appleton, Henry W. Slocum; Finance Committee, C. A. Sprague, Andrew H. Green, William Marshall, Lloyd Aspinwall, John W. Lewis.

—The following officers and directors of the Chicago & Muscatine Railroad Company were elected by a meeting of the shareholders, held in Chicago, June 4: President, Samuel M. Rowe, Sheridan, Ill.; Vice-President, D. F. Cameron, Chicago; Secretary, A. E. Walker, Chicago; Engineer, Robert Wilson, Ottawa. Board of Directors—N. A. Steel, Joliet; J. R. Zearing, Dover, Ill.; G. A. Kellogg, Ophir.

—At the annual meeting of the Milwaukee & St. Paul Railway Company, held in Milwaukee, June 8, the directors whose term had expired—Frederick P. James, Walter S. Gurnee, James Buell, of New York; S. S. Merrill, of Milwaukee; F. A. Mueller, of Rotterdam, Holland—were unanimously re-elected for a term of three years, and Mr. E. L. Franks, of New York, was chosen to fill a vacancy. Alexander Mitchell, of Milwaukee, was re-elected President, and Russell Sage, of New York, Vice-President. Of the 226,492 shares, 209,000 were represented at the election.

—At the annual meeting of the Canada Southern Railway Company, held at Fort Erie, Ont., June 5, the following directors were elected: Milton Courtright, Erie, Pa.; Sidney Dillon, New York; W. A. Thomson, Queenstown, Ont.; John F. Tracy, Chicago; John Ross, New York; O. S. Chapman, Canton, Mass.; W. L. Scott, Erie, Pa.; B. F. Ham, New York. These gentlemen were all in the old board.

—Mr. G. H. Sewall, lately in charge of the Brainerd Branch, has been appointed Assistant Engineer of the Pembina Extension of the St. Paul and Pacific Railroad.

—The new directory of the New York Central and Hudson River Railroad Company, the names of whose members we published last week, is the same as that elected a year ago, with the exception that Solomon Drullard (long and until very lately General Freight agent of the road), of Buffalo, takes the place of William A. Kissam, of New York.

—At a meeting of the Chester & Tamaqua Railroad Company at Tamaqua, Ill., June 3, the following board of directors was elected: Robert Rankin, St. Louis; C. A. Beecher, Vice-President Springfield & Illinois Southeastern Railway Company; and F. W. Tracy, Springfield, Ill.; McLea Doherty, Perry County, Ill.; R. H. Flemming and Maj. E. C. Dawes, Cincinnati, Ohio; W. P. Cutler, Marietta, Ohio; W. G. Barnard, Bellair, Ohio; Maj. J. C. Holbrook, Chester, Ill.; J. H. Barber, Steeleville, Randolph County, Ill.; Z. P. Curlee, Tamaqua, Ill.; R. M. Davis, Pickneyville, Ill., and D. C. Barber, Tamaqua, Ill. The following named gentlemen were elected as the Executive Committee for the ensuing year: E. C. Dawes, W. P. Cutler and D. C. Barber. The Ex-

ecutive Committee appointed C. E. Robinson, Auditor; R. D. Caruthers, Superintendent; G. W. Cavett, General Freight and Ticket Agent. The amount of stock represented was as follows: Robert Rankin, \$10,000, 100 shares; E. C. Dawes & Co., \$529,400, 5,294 shares; Perry County, \$100,000, 1,000 shares; Randolph County, \$100,000, 1,000 shares; E. C. Dawes, \$27,000, 270 shares; G. W. Hoge, \$37,000, 370 shares; W. G. Barnard, \$12,000, 120 shares; W. P. Cutler, \$10,000, 100 shares; J. H. Barnard, \$1,500, 15 shares; Z. P. Curlee, \$1,500, 15 shares; Dr. J. M. Sams, \$500, 5 shares; R. M. Davis, \$500, 5 shares; W. B. Stevenson, \$100, 1 share.

—At the annual election of the Columbus, Chicago & Indiana Central Railway Company in Columbus, Ohio, June 5, the following were chosen directors: W. D. Thompson, Adrian Iselin, W. R. Fosdick, F. R. Fowler, R. J. Capron, D. P. Morgan, Walter S. Gurnee and Henry Vallette, of New York; J. T. Thomas, of Philadelphia; Wm. Dennison, B. E. Smith and J. F. Bartlit, of Columbus, Ohio; John S. Newman, Indianapolis; and J. N. Converse, Union City, Ind. The directors elected B. E. Smith President and Gordon Moodie Secretary and Treasurer. Most of these were re-elected. The amount of stock voted was \$10,250,000, or about four-fifths of the whole.

—L. W. Filkins, having resigned his position as Eastern Passenger Agent of the Missouri, Kansas & Texas Railway, Mr. D. A. Freer, formerly of the Chicago & Alton Railroad, has been appointed in his place, with headquarters at Buffalo, New York.

—Mr. Wm. R. Hutton has been appointed Consulting Engineer, and Mr. Nicholas Goldsborough Chief Engineer of the Baltimore & Drum Point Railroad.

—John M. Courtney has been elected President; J. Alder Ellis, Vice-President; Leonval T. Guthrie, Treasurer; and L. M. Guthrie, Secretary, of the New York, West Shore & Chicago Railroad Company.

—At the annual meeting of the New Jersey West Line Railroad Company, a new board was elected, of which Mr. Benjamin F. Bingham, of New York, is President. The directors are: Oliver R. Stille, John Littell, Wm. J. Osborn, Peter W. Gallaudet, Benjamin F. Bingham, Morris P. Crater, William Ferguson, J. Jonathan, Wm. Z. Larned.

—Mr. C. R. Hubbard, an engineer who has served on Illinois and Iowa railroads for many years, is appointed to make preliminary surveys for the Texas & Pacific Railway from Fort Worth, Texas, westward. An escort of cavalry will attend his party, as the Indians in Northwestern Texas have an unpleasant custom of making their white visitors prematurely and permanently bald.

—Recent changes have been made in the officers and directors of the Milwaukee & Northern Railroad Company, leaving them at present as follows:

President, Jesse Hoyt; Vice-President, Angus Smith; General Manager, E. B. Greenleaf; Attorney and Counselor, O. H. Waldo; Secretary and Treasurer, Wm. Taintor; Chief Engineer, B. H. Edgerton; Directors, Jesse Hoyt, A. H. Barney, New York; Guido Pfister, Angus Smith, James Ludington, O. H. Waldo, E. B. Greenleaf, David Ferguson, Milwaukee; H. H. Smith, Plymouth, Wis.

—D. P. Clay, L. H. Randall, E. P. Fuller and W. D. Foster, of Grand Rapids, Mich.; J. W. Converse and C. Warner, of Boston; E. L. Gray, A. Paddock and W. D. Fuller, of Newaygo, Mich., have been chosen directors of the Grand Rapids, Newaygo & Lake Shore Railroad Company. D. P. Clay was re-elected President; C. Warner, Secretary; and E. P. Fuller, Treasurer.

—Mr. Walter F. Parker has been appointed Resident Agent in New York of the Norwich & New York Transportation Company, in whose service he has been for twelve years.

—At the annual meeting of the "Canton Company" in Baltimore, June 5, Charles J. Baker, George S. Brown, Charles E. Waters, Charles Weber, William Kimmel, Daniel Drew, Eugene N. Robinson, A. B. Baylis and James H. Bunker were elected directors. The new members are Daniel Drew and Eugene N. Robinson (of Robinson, Chase & Co.) who take the places of Walter L. Cutting and John Steward. The directors will meet June 20, and will probably make Daniel Drew President.

—Mr. David Brooks, of Philadelphia, an eminent electrician, and the inventor of the paraffine insulator, now widely used, has been chosen a member of the British Society of Telegraph Engineers. At the time of his death Professor Morse was the only American member of this society. Since that time Mr. Frank L. Pope and Mr. Brooks have been chosen.

—At the annual meeting of the Iowa Pacific Railroad Company, at Dubuque, Iowa, June 3, the old board of directors was re-elected, as follows: J. A. Rhomberg, W. G. Stuart, H. L. Stout, Wm. B. Allison, J. K. Graves, R. H. Babbage and Wm. Andrew.

—At the annual meeting of the Dubuque & Duncleth Bridge Company, held at Dubuque, Iowa, June 3, the old officers were re-elected for the ensuing year, as follows: Directors—Wm. B. Allison, H. L. Stout, F. W. H. Sheffield, R. B. Mason and J. F. Tucker. President, Wm. B. Allison; Secretary, W. E. Massey. Executive Committee—William B. Allison, H. L. Stout and F. W. H. Sheffield.

—A meeting of the stockholders of the Springfield & Northwestern Railroad Company was held at Springfield, Ill., June 6, and a discussion of the question whether the road from Springfield to Petersburg should be located north or south of the river resulted in the election of two boards of directors, the first board being: Alexander Starne, Chas. H. Lanphier, Springfield; D. J. Waggoner, S. P. Shope, of Fulton County; Hugh Fullerton, R. S. Miller, of Mason County; Robert Walbridge, W. S. Estel, of Menard County; W. S. Gale, of Knox County. The other board is:

Col. L. W. Ross, of Fulton County; A. A. Orendorff, H. Converse, of Sangamon County; W. G. Grove, of Menard County; Lyman Lacy, of Mason; A. K. Kincaid,

John Lee, of Menard County; Milam Phelps, of Fulton County. Under the law of 1869, the Governor of Illinois has appointed the following gentlemen directors of the company: Hon. Hugh Fullerton, of Havana, Mason County; Hon. A. Starne, of Springfield, Sangamon County; D. J. Waggoner, Fulton County.

—The stockholders of the Ashtabula, Youngstown & Pittsburgh Railroad Company met at Ashtabula, June 5, and elected the following board of directors: H. L. Morrison, Amos Fisk, Henry Hubbard, F. Harrington, R. C. Newell, H. B. Perkins, C. B. Wick, George W. Cass, A. L. Crawford, William B. Skinner, William Harrington, W. S. Bissell and Wm. McCreery. The following officers were then re-elected: Wm. McCreery, President; Wm. S. Bissell, Treasurer; A. F. Hubbard, Assistant Treasurer; Frank Silliman, Secretary.

—Mr. Edward Hudson has resigned his position as Superintendent of the Peoria, Pekin & Jacksonville Railroad, and, it is reported, will go to Texas for his health's sake.

—Gen. G. M. Dodge, Chief Engineer of the Texas & Pacific Railway Company, has gone to Texas. The engineer's office, which is, or is about to be, removed to Philadelphia, during his absence is left in charge of Mr. C. J. Quetil, Principal Assistant Engineer.

—At a meeting of the bond and stockholders of the St. Louis, Alton & Terre Haute Railroad Company, at St. Louis, June, the following were elected directors of the third class to serve for three years: Charles Butler, Samuel J. Tilden, Russell Sage, Robert Bayard and Thomas Denny, of New York. On the organization of the new board of directors, Charles Butler, of New York was elected President; George W. Parker, of Charleston, Illinois, Vice-President; and W. C. Broughton, General Superintendent. Selah Chamberlain, of Cleveland, and Horace F. Clark, of New York, were appointed directors of said company to fill vacancies occasioned by resignation—the latter of the first, and the former of the second class.

OLD AND NEW ROADS.

New Pennsylvania Railroad.

Preliminary surveys have been made for a railroad from Christiana on the Pennsylvania Railroad, 49 miles west of Philadelphia, southwest some 10 miles to Quarryville and thence south about 18 miles to Conowingo on the line of the Columbia & Port Deposit Railroad.

Owensboro & Russellville.

This road is now running nearly 40 miles to a connection with the Elizabethtown and Paducah, and a large force is at work on the extension of the grade. It is stated that the company have abandoned their intention of making a junction with the Edgefield and Kentucky and going into Nashville on that line, and they now intend to build a line of their own to Nashville. By this arrangement, the distance from Owensboro to Nashville will be about 116 miles. It is hoped that the line will be completed in a year.

A Heavy Locomotive.

The Indianapolis News notes the heaviest locomotive on record by ever so many thousand pounds, in the following item:

"Last night an engine of 3,400 tons passed through here on the Jeff road, for the New Albany, Mt. Carmel & St. Louis road. It is of the Brooks Manufacturing Company pattern, of Dunkirk, New York."

We wonder how heavy the rails are which must support this engine.

Nashua & Rochester.

An injunction, issued by Judge Sargent, was served on the directors of this road, June 1, at Nashua, N. H., in the interest of the advocates of the middle route, restraining the company from the collection of assessments and the transaction of business. A mandamus was also served in favor of the directors declared elected, by T. J. Melvin, of Chester, on stock not counted, demanding the surveys, profile of the road and books of the corporation. The contracts for building the road were to have been closed on Saturday, and there is much indignation in Nashua at the attempt to hinder the enterprise.

Winona & St. Peter.

The grading on this road is now completed for 58 miles beyond New Ulm, and the road bed is ready for the iron. Over 1,800 men are at work on the grading, and the track-layers have commenced their work. The engineers are establishing the grade to the State line.

A New Illinois Railroad.

A new road is talked about to run from Sciota, a station on the Western Division of the Toledo, Peoria & Warsaw, to Burlington, via Sagetown. There are large stone quarries near Sagetown which have now no means of transportation.

Northern Pacific.

A dispatch from Morehead, Dakota, says that the first locomotive crossed the Red River, and entered Dakota Territory at that point, at 3 p. m., June 7. This was the first locomotive to enter Dakota.

Denver & Rio Grande.

The track layers on this road are reported within two miles of Pueblo, which place is 112 miles from Denver and 36 miles from Colorado Springs, the winter terminus.

White Mountains Railroad.

The extension of this road (leased and operated by the Boston, Concord & Montreal Company) from Lancaster, N. H., northward about eight miles to Northumberland where it will form a junction with the Grand Trunk, is to be completed by the 1st of July. This will complete a new route from Boston to Montreal, which will probably compete with the Vermont Central.

The short branch from Wing Road station eastward toward Mount Washington, now completed to Pierce's Mills, makes it possible for the passenger who leaves Bos-

ton by the morning train to reach the summit of Mount Washington by sundown; and those who wish to reach Boston by the train arriving there at 6:30 p.m. now may leave the summit after sunrise, or the Crawford House at eight in the morning, instead of getting up at the latter place at the extremely uncomfortable hour of 3 a.m. The distance from Pierce's Mills to the Twin Mountain House is four miles; to the White Mountain House eight miles; and to the Crawford House thirteen miles.

Utah Northern.

Twelve miles of this narrow-gauge road is now in running order and the grading is progressing rapidly. The first section of the road will shortly be opened for business. It is expected that the Montana stages will leave from the northern terminus of this road.

Peoria & Springfield.

The bridge across the river at Peoria is now ready for the erection of the piers, which are to be built of Joliet stone. The grading is completed for four miles from the bridge, and a large force is at work, pushing southward. The exact location of the road between Pekin and Springfield has not yet been determined. Messrs. D. T. Thompson and A. J. Ware, of Pekin, Ill., are the contractors.

Massachusetts & Rhode Island.

The projectors of this proposed new railroad from Worcester, Mass., to India Point, opposite Providence, R. I., have voted to adopt the 3-feet gauge.

Athol & Enfield.

The route for the extension of this road from Barrett's Station in Belchertown to Springfield, Mass., is nearly all located. The \$300,000 recently voted by the city of Springfield has not yet been paid, but it will be very shortly. The road will be placed under contract immediately, and it is hoped that it will be finished this year.

Milwaukee & St. Paul.

Morton, Bliss & Co. are offering in the New York market \$2,000,000 of this company's new issue of 7 per cent. gold first mortgage bonds at 95, payable and deliverable July 1. These are secured by a mortgage on the Chicago & St. Paul road (St. Paul to Winona) and its extension, now in progress from Winona to La Crescent, and the bridge to be built across the Mississippi from La Crescent to La Crosse.

Rochester & State Line.

The Rochester *Union* says that the engineers on this road have completed the survey from Salamanca to Machias and have located the line, which is said to be a very favorable one. The engineers have returned to the city and will commence the survey from Garbuttsville to Warsaw at once. The route will be through Mumford to Pavilion and Covington and Middleburg to Warsaw. Measures are adopted to secure the right of way, and it is hoped that construction will soon be commenced.

Continental Railroad.

Mr. Philip Allen, of Rock Island, Ill., has taken a contract for the construction of 300 miles of telegraph line on this road, commencing at Tiffin, O., passing through Fort Wayne, Ind., and Kankakee, Ill., and crossing the Illinois River at Henry.

Texas & Pacific.

This company is sending out parties of engineers to all parts of the road, in order to complete the surveys as early as possible. Engineers for five divisions have been appointed, one of whom is Mr. George K. Wilson, late Chief Engineer of the Southern Pacific.

Ashtabula, Youngstown & Pittsburgh.

The contract for the graduation and masonry of this road from Ashtabula to the harbor has been awarded to Gord & Wright, of Allegheny City, Pa., and from Niles to Bristolville to Manners, Moore & Co., of Tuscola, Ill. Work is to be commenced at once.

Chicago & Southwestern.

The Board of County Commissioners of Leavenworth County, Kan., which county holds a large amount of stock in the Chicago & Southwestern Company, has protested against the indorsement by the company of the bonds issued for the construction of the Atchison Bridge.

Topeka, Fort Scott & Memphis.

The contract for the building of this road by the Philadelphia Narrow-Gauge Railway Construction Company has been consummated, and work has already been begun. Work is to be carried on both ways from Fort Scott, and it is hoped that 75 miles can be completed this year. The proposed line of the road through Kansas commences at the south line of Bourbon County, and runs through Bourbon, Linn, Anderson, Franklin, Osage, Shawnee, Jackson, Pottawatomie, Nemaha and Marshall counties—a distance of two hundred miles. The company was organized last January, with a capital stock of \$4,000,000. The Kansas directors are Governor George A. Crawford, H. T. Wilson, T. L. Wilson and B. F. Hepler, Fort Scott; J. B. Britton, E. P. Higby, D. C. Knowles and Wm. Roach, of Mapleton; E. C. Nicolls, of Garnett; Governor P. P. Elder, of Ottawa, and C. K. Holliday, Jacob Smith and Dr. F. L. Crane, of Topeka.

Improved Stock Car Company.

This company filed a certificate of incorporation in the office of the Secretary of State at Columbus, O., June 8. The capital is \$1,000,000, and the corporators are: John L. Gill, R. E. Nell, F. C. Sessions, P. Hayden and John G. Deshler.

Bellaire, Woodsfield & Zanesville.

A certificate of incorporation of this company was filed with the Secretary of State at Columbus, O., June 8. The road is to extend from Bellaire through Belmont, Monroe, Noble, Guernsey and Muskingum counties to Zanesville. The capital stock is \$300,000. The corporators are: S. L. Mooney, James O. Amos, S. B. Philpot, B. A. Shouse, E. Headley, J. Lieuelian, John M. Rownd, P. Diehl, A. Erlewine, Wm. Palmer, John Kerr, B. F. Pean, Allen C. Miller, Christian Ohns, D. Newhart, Wm. Okey, J. T. Judkins, W. T. Morris and P. Schumaker.

Alexandria & Fredericksburg.

On the 26th ult., a correspondent of the *Philadelphia Press*, wrote of this road:—"It extends from Alexandria to Quantico Creek, 38 miles. The grading is all done, and less than three miles of rails remain to be laid to unite the iron arms of the North with those of the South by this short route. This is between Freestone Point and Quantico. When completed the running time between the capital of the nation and the capital of the Old Dominion, will be reduced from seven and a half hours to four and a half hours. At Quantico, the Richmond, Fredericksburg & Potowmack boats have been stopping since the first of May, and the change from the old wharf at Acquia Creek is quite appreciable. About half a mile south of the present steamboat terminus the Richmond, Fredericksburg & Potowmack extension joins the new road immediately below Quantico Creek, which is crossed by a bridge nearly two thousand feet long." The Southern Security Company controls this new road, as it does the chain of roads from Acquia Creek and Fredericksburg, south through Richmond, Petersburg, and Weldon to Wilmington, N. C.

Chesapeake & Ohio.

The *Border Watchman* of May 30, says: "On last Saturday morning there was a great slide in the west portal of the Great Bend Tunnel. The slide is estimated at 8,000 cubic yards, and several months will be required to remove it. In fact the side of the mountain "let go" and came down into the cut. It is thought that this will not retard the laying the track any length of time."

Atlantic & Great Western.

Ground has been broken for the new shops at Galion, Ohio. They are to be of the following dimensions: Main shop, 211 by 100 feet; blacksmith shop, 188 by 65 feet; boiler shop, 96 by 65 feet; and will employ from 250 to 300 hands. The shops are to be of stone and brick, and roofed with slate. They also expect to build extensive shops for repairing freight and passenger cars. The general ticket office, under W. B. Shattuck, has been moved from Cincinnati to Meadville, Pa.

At a meeting of the company on the 10th inst. the ratification of the leases of the Niles & New Lisbon and the Liberty & Vienna railroads were unanimously ratified.

Cincinnati & New York.

This corporation, recently chartered in Ohio, proposed to construct a branch of the Atlantic & Great Western Railroad, from Springfield, Ohio, southwestward through Clifton or Yellow Springs, Xenia, Lebanon and Sharon to Cincinnati, a distance of about 70 miles. Gen. George B. Wright, Vice President of the Atlantic & Great Western, and H. C. Lord, late President of the Indianapolis, Cincinnati & Lafayette Company, are among the incorporators. The proposed road would be for the entire distance near the Little Miami road (scarcely anywhere as much as six miles from it), while the new Cincinnati & Springfield "Short Line" would be a little further off on the other (west) side, varying from three to twelve miles for the most part. It is reported that if the country on the line will subscribe half a million in cash or take one million of the \$3,000,000 authorized stock, the Atlantic & Great Western Company will secure the construction of the road. This company now enters Cincinnati over the Cincinnati, Hamilton & Dayton road, from Dayton southward.

Cincinnati & Baltimore.

This road, which forms the new entrance of the Marietta and Cincinnati into Cincinnati was opened June 5, as an excursion to Loveland. The road is but six miles long, but its construction has required some very heavy work, a large portion of Mill Creek Valley having been filled up. The Marietta and Cincinnati, which road thus obtains an independent line into the city of Cincinnati, has a perpetual lease of the road. The Springfield and Cincinnati Short Line, when completed, will also use this road. In connection with this road large stock-yards are to be built near Cumminsville.

Columbus & Ferrara.

Surveys of this line from Columbus to the coal fields of Perry county have been made, and it is hoped that the construction of the road may be commenced this season.

Wheeling & Lake Erie.

The people of Wheeling voted, on June 1, to authorize the subscription of \$300,000 to the stock of this road and also \$300,000 to the stock of the Wheeling & Ohio Union Railway Company, which proposes to build a bridge across the Ohio at Wheeling. At the same time, the county of Ohio, W. Va., in which Wheeling is situated, voted to take \$100,000 in the stock of the Union Railroad (bridge) Company. On the 6th inst., Norwalk, Ohio, voted a subscription of \$110,000 to the Wheeling & Lake Erie road by an almost unanimous vote.

Pekin & Mississippi.

Engineers are to begin immediately the surveys for the location of this road from Peoria west of Niota, Ill., opposite Fort Madison, Iowa, a distance of about 90 miles, and it is promised that contracts will be let soon.

Lake Shore & Michigan Southern.

General Order, No. 15, dated June 1, from the General Superintendent announces that the following changes in the names of stations have been made to take effect from that date:

Franklin Division—Two Mile Run to be known as Run, Waterloo to be known as Polk, Sandy Lake to be known as Naples, Coal Branch to be known as Branch, Clark's Mills to be known as Clark.

Detroit Division—State Line to be known as Alexis.

A station has been opened upon the Sandusky Sub-division of the Toledo Division, named Oak Harbor—J. Hilbing, Agent.

General Order, No. 16, of the same date, announces that Mr. W. L. Stow has been appointed Agent at Toledo since E. S. Tracy, resigned.

New stations have been opened, and agents appointed, as follows:

Lansing Division—Albion, S. P. Brockway, Agent;

Homer, B. F. Wetherbee, Agent; Litchfield, William Pittwood, Agent.

Toledo Division—Sandusky, M. J. Young, Ticket Agent.

Franklin Division—Jefferson, H. L. French, Agent.

Lansing & Lake Michigan.

This company has been organized to build a road from Lansing, Mich., to Holland, a distance of 80 miles. The officers are the same as those of the Canada, Michigan & Chicago Railroad Company.

Petersburg Railroad.

This company has resolved to build a road from Petersburg to City Point. The road will run on the bed of the old City Point Railroad, between that road and the river, and will be built by General Mahone. The new road will connect with the Petersburg Railroad at the end of Franklin street, crossing the old City Point road just above the bridge, in Petersburg.

Chicago & New York.

The certificate of incorporation of this company was filed in the office of the Secretary of State at Springfield, Ill., June 1. This road is organized under the general railroad law of the State, and the road is to run direct from Chicago to New York. The capital stock is \$1,000,000, and the incorporators are James W. Odell, David Krieger, Joseph E. Young, Clinton Briggs, C. S. Alexander, H. C. Ayer, Asa Dow, W. F. Coolbaugh and John M. Corse, all of Chicago.

Milwaukee & Northern.

Shawano County, which is west of the southern end of Green Bay, has voted a subscription of \$100,000 to this road to secure its extension through its borders.

Boston, Hartford & Erie.

On the 7th inst. Mr. F. A. Lane, the president of this company, announced to the New York Stock Exchange that the transfer books would be open thereafter at the office of the Bankers' and Brokers' Association in Broad street. There has been no transfer office heretofore, and in the revolution in the Erie board there were scarcely any transactions in the stock; but since that time it has been quite active, and buyers have demanded that the rules of the Exchange be abridged and a transfer office maintained in the city.

There are again rumors that the company's lines will be leased to the Pennsylvania Railroad Company to be completed and worked by it as an outlet for New England traffic.

Hartford & New Haven.

Solid steel rails are now being laid on both tracks of this road, from the depot in New Haven to Cedar Hill. From Cedar Hill to North Haven the steel rails have already been laid, and it is expected that the entire road will be laid with steel by September 1.

New York Central & Hudson River.

The scrip certificates of this company are to be changed into regular shares, as is announced in the following communication from the Secretary to the President of the New York Stock Exchange:

"Sir: Please to take notice that this company has increased its capital stock \$44,428,300, consisting of 444,283 shares, of one hundred dollars each, for the purpose of capitalizing at par, in pursuance of the agreement of consolidation, the 'consolidation certificates' heretofore issued by it; and that said shares of stock will be issued to the holders of said consolidation certificates on and after Wednesday, the tenth day of July next, at the Union Trust Company in the City of New York.

This makes the amount of capital stock of this company \$89,428,300, which is at the rate of \$121,219 per mile of road. The bonded debt is at the rate of about \$18,500 per mile, so the entire capital account per mile of road owned is about \$140,000, and to pay 8 per cent. on this net earnings of \$11,200 per mile are required.

It is announced that the company have decided to lay two additional tracks over the entire line. They are to be on the old right of way and alongside of the present tracks, except that they will be laid around, instead of through the principal towns on the road. These tracks are intended especially to accommodate the through freight traffic, and they will increase enormously the capacity of the road and make it possible to move freight with great economy, as uniform low rates of speed may be maintained when passenger trains do not interfere.

Lake Ontario Shore.

There has been an effort to divert this line from the original route along the shore of Lake Ontario west of the Genesee River, and bring it to Rochester and thence westward along the Erie Canal. At a meeting of the directors it was decided to keep to the shore line, crossing the Genesee River at Charlotte, and making the Niagara River terminus at Lewiston, which is four miles north of Suspension Bridge. This is the most direct route, and the one with the easiest grades, but there is scarcely a town on it larger than a mere village. On the other hand, the canal route, with its numerous flourishing towns, has already the New York Central & Hudson River Railroad, as well as the canal, which would take the largest part of the local traffic in any event, probably. There is scarcely anything that pretends to be a harbor on the lake west of the Genesee River.

New Jersey West Line.

The recent election resulted unfavorably to Mr. Asa Packer, who has had control for a year or more past and who, apparently, intended to make it the Jersey City outlet of his Pennsylvania coal roads. He has charters for a line from Easton to Perth Amboy, of which the West Line forms no necessary part, and its chief value would be as a connection with New York City for passenger and ordinary freight traffic. Twenty miles of the road are in operation, and grading is progressing near New York.

The *Easton (Pa.) Express* says it is true that the Lehigh Valley Railroad Company has lost control of the West Line Railroad. The difficulty now arises as to the payment of the interest on the company's bonded debt. The bondholders are principally the stockholders of the company living along the line of the road, and as the new

board promised to pay interest on the bonds they were elected in the place of the old board, who might have been re-elected under a like promise, which, however, was declined, not being the original understanding. The Lehigh Valley Company have therefore lost nothing that it cared to have, and will be largely profited if the new board commences the payment of interest on the bonds of which it holds several hundred thousand dollars.

Atchison & Nebraska.

This railroad is now open to Sterling, Neb., 112 miles from Atchison and 12 miles northwest of the recent terminus at Tecumseh.

Philadelphia & Reading.

This company has been offering in London its general consolidated 6 per cent. mortgage bonds to the amount of \$3,000,000, the balance of a total of \$25,000,000. The price was 94, or, reckoning allowances, about 93, which makes the interest on the money received for the bonds 6.45 per cent.

The Pennsylvania Company.

Announcement is made that books were opened at Pittsburgh on the 1st inst. for subscriptions for 48,000 shares of this company, to remain open until all are taken at par. Twenty per cent. is paid on subscribing and the remainder as called for.

These shares, it will be remembered, represent the value of the leases of the roads worked by this company, including the Pittsburgh, Fort Wayne & Chicago, the Pittsburgh, Cincinnati & St. Louis, the Erie & Pittsburgh, the Cleveland & Pittsburgh and their leased lines. The money received for these shares will probably be expended for equipment and improvement.

Baltimore & Ohio.

The Baltimore *Sun* reports that at a meeting of the directors of this company, May 18, it was resolved, upon authority granted by acts of the Legislatures of Maryland, Virginia and West Virginia and Pennsylvania, to issue bonds, negotiable in Great Britain, for a loan amounting to two million pounds sterling, or nearly \$10,000,000 United States money. The bonds are to be in sums of \$100 each, and they bear 6 per cent. interest from March 1, 1872, and are payable in twenty years after that date, the interest to be paid semi-annually. The entire line of road of the Baltimore & Ohio Company, from Baltimore to Wheeling, including branches, is mortgaged for the payment of the bonds, and Messrs. John W. Garrett and Johns Hopkins, of Baltimore, and James Tinker, of New York, are named as trustees.

The Alexandria (Va.) *Sentinel* says, "work has been commenced on the extension of the Washington Branch of the Baltimore & Ohio Railroad to a point opposite Alexandria. The bridge across the river will be above Alexandria harbor, and will be built immediately. Until completed, the Orange & Alexandria cars will cross on steamers. The coal from the Cumberland mines heretofore shipped from L'ceast Point, an average of 1,700,000 tons a year, will hereafter be shipped to New York from Alexandria. Three steamers are in readiness to ply between Alexandria and New York in that trade alone. This arrangement, it is said, will save on transportation from the mines to New York 45 cents on the ton."

Pittsburgh & Connellsburg.

This company, the Baltimore *Sun* reports, has given a mortgage for one million pounds sterling, or nearly \$5,000,000 United States money. Messrs. Robert T. Baldwin, Charles J. Baker and William Keyser are trustees. This loan is to be in 5,000 bonds, of \$1,000 each, payable in thirty years from the 13th day of April, 1872, with 6 per cent. interest, payable semi-annually. The amount of \$5,000,000 thereby provided for is made up of \$2,000,000 due the city of Baltimore, \$1,000,000 due the Baltimore & Ohio Railroad Company, while the remaining \$2,000,000, which is the only really new loan, is to be used in laying double track, extending the equipment, etc., on the road.

Montpelier & Wells River.

The grading of this road is nearly completed. The engineer reports that the entire line will be ready for the iron by the middle of July, with the exception of the two bridges at Montpelier. It is expected that the road will be completed by the fall.

Boston, Clinton & Fitchburg.

The selectmen of Fitchburg have appointed 42 of the employees of this road railroad police, under the new Massachusetts law.

Banta's & Bay Point.

The Pacheco, Cal., *Gazette*, says that the grading force lately at work between Antioch and Banta's, has been transferred to the section of the line between Bay Point and Antioch, along the lower part of the Sacramento River.

Boulder Valley Extension.

The company under this name which graded a line from Erie to Boulder, Col., has sold its franchise and partially completed road to the Denver & Boulder Valley Railway Company. The latter company intends to complete the road at once.

Toledo, Peoria & Warsaw.

The mortgage bonds of this company have been placed on the stock list of the New York Stock Exchange. Messrs. James F. Secor and William Tracy made the following statement concerning them to the Governing Committee:

Seven per cent. consolidated mortgage bonds, dated May 2, 1870. Maturity May 2, 1910. Interest payable May 2 and November 2. Principal and interest payable in city of New York, divided into four classes as follows:

Class A, Nos. 1 to 4,500, \$1,000 each.	\$1,500,000
Class B, Nos. 1 to 1,600, \$1,000 each.	1,600,000
Class C, Nos. 1 to 1,800, \$1,000 each.	1,800,000
Class D, Nos. 1 to 1,300, \$1,000 each.	1,300,000

Total. \$6,200,000
All these bonds, excepting numbers from 1,201 to 1,500

inclusive, of Class A, are issued by the company to retire the same amount of outstanding bonds on the road, and are to remain in the hands of the trustees to be issued for that purpose only, and upon surrender and cancellation of such outstanding bonds.

Massachusetts Central.

The contract for building the bridge of this road across the Connecticut River at Northampton, Mass., has been awarded to J. R. Smith, of Springfield, Mass. Included in the contract are the foundations, masonry and superstructure complete, and the total contract price is upward of \$130,000. The bridge will be 1,400 feet long, and will be completed by September, 1873. Work will begin at once.

Dunleith & Dubuque Bridge.

The annual report of the directors of the Dunleith & Dubuque Bridge Company for the year ending May 31, 1872, has just been published. The following is a summary: The earnings of the company for the year 1871 were for \$28,876,400 pounds of freight transported westward, netting to the company \$125,759.12 in cash, and 52,018 passengers at 25 cents each, \$13,004.49, making a total of \$138,763.61.

The company have now substantially completed the shore improvements to their bridge, having filled 1,734 feet of trestle-work, with embankment to a depth of 20 or 30 feet, and erected 672 feet of iron bridges on stone abutments, at a total cost of \$131,249.59.

The whole amount of freight transported over the bridge during the first three months of the current year was 63,280,000 pounds eastward, and 26,990,400 pounds westward; for the corresponding time last year, 55,776,700 pounds eastward, and 22,208,900 pounds westward. The number of passengers in the first three months of the current year was 10,213; for the corresponding time last year, 9,505.

It is believed that the balance of the year will show a considerable increase of business, in consequence of the completion of one hundred miles of railroad north from Dubuque, along the west bank of the Mississippi, arrangements having been made by which the business of this road will pass over the bridge.

The trustees have invested \$60,000 of the contingent fund in 7 per cent. first-mortgage bonds of the Delaware & Hudson Canal Company, the balance of the fund being deposited with the United States Trust Company, on

Cincinnati & Terre Haute.

The Cincinnati *Railroad Record* learns that this company has 20 miles of road from Terre Haute eastward in operation; that 42 miles, from Greensburg, Ind. (— miles from Cincinnati on the Indianapolis, Cincinnati & Lafayette road), westward to and through Columbus are under contract to be completed by September, and that the contract for the forty miles more needed to complete connection with the coal mines from the east the company hopes to put under contract by July, and, if the subscription of \$5,000,000 asked from Cincinnati is made, can complete by December.

The company offers liberal inducements for the location of iron works and other manufactories on its line.

Baltimore & Drum Point.

There are now two parties in the field making experimental surveys for this proposed road. It is expected that construction will begin at an early day.

Missouri, Kansas & Texas.

This company's stock was introduced in the New York Stock Exchange last week, and beginning at \$35, has sold up to \$42. The road is bonded at the rate of \$22,990 per mile, and the company is authorized to issue stock at the rate of \$27,457 per mile. At 40, the stock will realize about \$11,000 per mile.

Illinois & St. Louis Bridge.

The St. Louis *Republican*, describing this structure at the time of the visit of the American Society of Civil Engineers, on the 7th, says: "Everything in relation to the bridge appears to be going forward rapidly. The western abutment is all finished with the exception of the cornice, which will be left until the superstructure is completed. The west pier will be completed in about twenty days. The east pier will be done in about forty days, and the east abutment in about sixty days. The manufacture of the superstructure is going on at the Keystone Works, at Pittsburgh, with great rapidity. There are twenty-two lathers engaged in doing the steel work on the steel tubes of the superstructure, at the works, running night and day. The immense steel and iron bolts and 'skewbacks,' are all completed. The bolts being nearly all in place in the masonry."

"The erection of the superstructure will be commenced about the middle of August, possibly a little earlier."

"The upper roadway will be 54 feet wide, including two sidewalks, each 8 feet in width. This leaves a width of 38 feet, which will be divided into four tramways—two for street cars and light driving, and two for heavy teams. Underneath the above will be a double-track railroad."

"It is understood that negotiations are now on foot which will lead to the completion of the tunnel at the same time with the completion of the bridge—all of which, we were told, will be done in about a year from this time."

Sheboygan & Fond du Lao.

The sink hole on this road, two miles west of Ripon, has swallowed up from 6,000 to 10,000 yards of earth, and it is hoped that the bottom has been reached.

Milwaukee, Manitowoc & Green Bay.

This company has changed its name, and will be known hereafter as the Milwaukee, Lake Shore & Western. The line of the road has been located along the lake shore through Port Washington, Sheboygan, Manitowoc and Two Rivers, and thence to Green Bay, with a line also from Manitowoc westward to Appleton. Most of the latter line and a little of the lake shore line is consolidated.

Lee & New Haven.

A meeting of the directors of this road was held at Pittsfield, Mass., June 5. If Pittsfield will subscribe \$25,000 to the road, it will be built from New Haven to Lenox Furnace, running thence to Pittsfield on the Housatonic road. Last fall Pittsfield voted down a proposition to subscribe \$50,000 to the same road.

New Hampton & Mankato.

The name of this projected road, some account of which was recently given, has been changed to Chicago, Dubuque & Mankato.

Wisconsin Valley.

The Dubuque *Herald* of June 5 says that contracts have been let for the entire line of this road, and men are now at work. The route of this road will be from La Crosse, Wis., via Tomah to Grand Rapids. From La Crosse to Tomah the track of the Milwaukee & St. Paul will be used; from Tomah to Grand Rapids, 45 miles, is the portion now under contract. It is intended eventually to extend the road to Warsaw. Grand Rapids is the center of a larger lumber country. Mr. J. K. Graves, President of the Chicago, Dubuque & Minnesota Company, has charge of the construction of the road.

Burlington, Cedar Rapids & Minnesota.

This company, having sold all its bonds on its main line, now offers, through Henry Clews & Co., of New York, \$2,200,000 of bonds secured by mortgage on the "Milwaukee Branch."

Fort Madison & Northwestern.

Fort Madison, Iowa, on the 6th inst., voted a 5 per cent. tax in aid of this proposed railroad, and General Gilchrist, the chief engineer, will begin a survey for location directly.

Davenport & St. Paul.

This road proposes to build its shops in the town which offers the largest subsidy. Rochester, Minn., offers \$50,000; Maquoketa, \$40,000; Eldridge Junction, \$30,000 and 20 acres of land; and Davenport is asked to vote \$75,000 and settle the question.

Mississippi Valley & Western.

The track-layers on this road reached the crossing of the Missouri, Iowa and Nebraska Railroad at Alexandria, June 4. It is expected that trains will shortly be running into Keokuk. The line extends from Keokuk along the west bank of the Mississippi to a point opposite Quincy, Ill.

Leavenworth, Lawrence & Galveston.

It is said that negotiations for the purchase of the Kansas Pacific Branch from Lawrence to Leavenworth, which were lately broken off, have been reopened.

Republican Valley.

The Kansas City *Journal* says that work is very soon to be commenced on this road, running from Junction City up the Valley of the Republican River. The road is to be constructed by the Kansas Pacific Company.

Vicksburg & Memphis.

The contract for the construction of this road from Vicksburg to Helena has been let to Lane, Hazlehurst & Co., a Georgia firm, composed of Col. A. J. Lane, George R. Hazlehurst and Thos. J. Davies.

Greenville & Columbia.

A meeting of the guaranteed, second-mortgage and non-mortgage bondholders of this road, will be held at Columbia, S. C., June 19.

Jacksonville, Pensacola & Mobile.

The Tallahassee *Sentinel* of June 1, has the following account of further legal complications in which this road is involved.

"On Friday last, a new complication arose from the action of Judge White, of the Second Judicial Circuit, in granting an order appointing a new Receiver to take charge of that part of the road from Lake City to Quincy. This order was granted upon the application of Messrs. Smith Simkins, Chandler H. Smith, Geo. W. Taylor and others, holders of the first mortgage bonds of the road, and Mr. F. B. Papy, late Freight Agent of the road was appointed Receiver. Mr. Papy accepted the appointment, and we believe has proceeded to carry out the order of the Judge. Mr. Greeley, however, the Receiver already in possession of the road, under appointment of Judge Gillis, of the Fourth Circuit, manifests no intention of surrendering his rights, and a conflict of jurisdiction between the courts seems inevitable. Mr. Greeley, we understand, has notified Mr. Papy that his services as Ticket and Freight Agent are no longer required, and his connection with the road will be considered severed. His appointment as Receiver is also ignored. Mr. James L. Taylor was appointed to succeed Mr. Papy.

Since penning the above, we learn that still another Receiver has been appointed, this time upon the Florida Central R. R. (that part of the Jacksonville, Pensacola & Mobile running from Lake City to Jacksonville.) The order was granted Thursday by Judge Wheaton of the Fourth Circuit, upon the suit of E. M. L'Engle, one of the original stockholders of the Florida Central, who appointed James M. Baker, Receiver."

Virginia & Truckee.

Over 600 Chinamen are at work on that part of this road which lies between Carson City and Steamboat Springs. The Virginia, Nev., *Enterprise* says: "The track will be graded through to Washoe by June 20, and next Saturday they will begin laying track from Steamboat to Washoe. By the 1st of July all the grading from Steamboat to Carson will be completed."

Houston & Texas Central.

The employees of this road have struck on account of an order of the company which relieves the company from the payment of all damages on account of the injury or death of an employee, though caused by negligence of other employees. It is reported that ten engines are at Hempstead, disabled by the removal of portions of the working gear, and that all trains, except mail trains, are stopped.